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HANFORD WORKS MONTHLY REPORT

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FOR

FEBRUARY 1951

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Compiled By

Division Managers

36545

March 20, 1951

HANFORD WORKS
RICHLAND, WASHINGTON

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TABLE OF CONTENTS

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MONTHLY REPORT

FEBRUARY 1951

GENERAL SUMMARY

MANUFACTURING DIVISIONS
Production Divisions

A total of 82 tons of metal was discharged at the goal value. The special request program required 330 manhours of effort by the P Division. Twenty-three tubes of special request material were charged into the piles and the material from 29 tubes was discharged from the piles and shipped off site. An additional 175 manhours were utilized in charging, discharging, and shipping Chemical 68-56.

The average time operated efficiency was 89.4 percent. Four days were lost at H pile in removing a ruptured uranium slug and a one day outage was experienced at all five piles because of a high voltage line pole fire. A second ruptured slug was removed from the H pile during this outage.

All piles gained in maximum operating level during February as follows: B pile from 395 MW to 415 MW, D pile from 370 MW to 385 MW, DR pile from 463 MW to 484 MW, H pile from 485 MW to 500 MW, and F pile from 320 MW to 380 MW. Average levels were 387 MW, 360 MW, 448 MW, 469 MW, and 375 MW, respectively. Total pile production in February was 6.5% more than the January production.

A total of 82 tons of acceptable slugs was canned at a yield of 91.2 percent. The machining yield was 81.6 percent. The melt plant produced 17 tons of billets at a yield of 86.7 percent and a solid metal yield of 93.9 percent.

A total of 122 charges plus two acid washes was started in the Canyon Buildings, 121 plus two acid washes were completed through the Concentration Buildings and 124 charges were completed through the Isolation Building. The average cooling time was 63 days. The average purity of completed charges was 98.2 percent.

Plant Utilities and Maintenance Divisions

The electric power demands for the month were:

Process - 2-1-51 (9:30 - 10:00 A.M.)	69,000 KW
Village - 2-1-51 (5:00 - 5:30 P.M.)	31,500 KW
	100,500 KW

Although not coincidental, the total represents a new all time high power demand established by record process load demand.

Unscheduled interruptions of production resulted from electrical outages and equipment failures as follows:

(1) Pole fire on 230 KV structure near 251 substation on February 18 resulted in Critical Power Grade Y in all areas for a period of 20 hours.

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(2) During startup of 105-F on February 20, three 800 HP process pump motors failed - 10 hours required for replacement.

Between February 9 and 13, raw water turbidities increased to a maximum of 240 ppm with an all time high for raw water iron of 5.3 ppm. Filter operation difficulties were experienced. The previous maximum turbidity for the month of February was 100 ppm.

The prolonged nationwide railroad strike reduced cars handled 34%. It was necessary to furlough 16 railroad operating and maintenance personnel until normal car movements were resumed.

Lubrication specifications for all new facilities are proceeding on schedule.

TECHNICAL DIVISIONS
Pile Technology Division

Investigations were conducted of the technical feasibility of various improvements considered for incorporation in the "C" Pile. These include an increased water annulus, use of enriched uranium, increased cooling water flow and pressure, an increased number of process tubes, shielding effectiveness, and control requirements.

Emphasis was continued on changes in pile control rods, poison columns, and special loadings so as to maintain or increase uniformity of radial flattening thereby obtaining maximum pile power levels.

Experimental and theoretical critical mass studies for chemical separations and 235 Building proceeded normally.

Exponential pile experiments for lattice design of new piles were continued although little information will be available for improvements in the "C" Pile.

Programs are being planned and equipment designed and constructed for studies of the quality, quantity, and pressure required for pile cooling water to enable increased pile outputs.

Additional information of the chemical reaction between graphite and carbon dioxide under pile operating conditions confirms that this is a major consideration limiting pile power levels. Fabrication of equipment for experiments directed towards finding methods of overcoming this limitation is well under way.

The program of studies of irradiation damage to graphite proceeded normally.

Studies were continued of the metallurgical properties produced by rolling and swaging uranium under various conditions and of methods of testing uranium to determine stability under pile irradiations.

Examinations of ruptured slugs were made in the radio-metallurgy building. Improved methods of canning inspection, to eliminate slugs which might rupture at high power levels in the piles, were investigated.

Cold break-in tests of the metal tritium extraction line have shown no major difficulties.

Long range programs of tritium extraction development were cancelled as a result of revised A.E.C. plans. All development and construction is now directed towards efficient recovery of tritium from the present charge in H Pile.

Separations Technology Division

Production testing of the removal of iodine from metal solution during dissolving by air sparging is being continued, with widely varying preliminary results. Production testing of lowered bismuth concentration in the Extraction step has progressed to a 45% reduction in bismuth weight and to a 10% decrease in the process solution volumes with satisfactory results to date. The first batch of Purification supernatants from Building 234-5 has been recycled to Building 224 for recovery. Thirty batches of plutonium oxalate have been successfully hydrofluorinated directly without intermediate oxidation in Building 234-5. The use of a higher (1000°C) holding temperature in the Casting operation has resulted in ca. 30% reduction in skull weights. New dies designed to correct present dimensional difficulties were placed in service in the Pressing operation at month end.

In Redox and TBP process development, Technical Manual preparation has continued to 60% completion of the Redox Manual and 11% completion of the TBP manual. Full operation of the Demonstration Unit (for Redox) and Scale-Up Unit (for TBP) was resumed for purposes of training "S" Division operations personnel during the month. The first group of 20 supervisors and 20 operators is now in training. A program of testing large-diameter pulse columns for assistance to ORNL Purex process design was initiated during the month. Engineering development studies are continuing on Production Plant pumps, feed scavenging, and materials of construction. Authorization of the additional funds required for construction of the Hot Semi-Works was received from the AEC and the Bureau of the Budget by February 12 and the lump sum construction contract was awarded to the recent low bidder, the L. H. Hoffman Company of Portland, Oregon.

In the research laboratory, studies have been continued on the use of mercury to hold iodine in Dissolver solution, the dissolution of slag and crucibles from 234-5 Reduction and subsequent plutonium recovery by solvent extraction methods, and the adsorption characteristics of Hanford soils relative to aged first cycle supernatants. Several methods for Redox coupling to metal production are under current study. New data have been obtained for plutonium distribution ratios in Redox systems, as well as for solubilities of process reagents in stripping or extracting solutions.

In the 234-5 process development laboratory, additional studies have been carried out on methods of introducing Chemical 70-58 into the RM Line, improving the dissolution time for skull recovery, reduction of plutonium trifluoride, evaluation of the number of peroxide cycles required for isolation and purification of plutonium, and the substitution of sulphur for iodine as the booster in the Reduction step. Noticeable improvement in the quality of core assembly production was observed in inspection operations during the month.

The fourth and last Silver Reactor-Fiberglas filter assembly was installed in Cell 3-5R at B Plant during the month. All four units are operating satisfactorily. Further experimental studies are under way to determine whether or not the formation of ammonium nitrate is possible within the off-gas filter units.

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Technical Services Division

Mass spectrometer development studies were continued in support of the P-10 Project. The Leeds & Northrup emmission spectrometer was tested with process samples, and in the tritium concentration range over which calibration data were available gave results in good agreement with mass spectrometer results.

Several new techniques and modified analytical methods were tested and found to yield encouraging results. These included an adsorption procedure for separation of TBP from aqueous metal recovery process streams prior to analysis by infrared techniques, the use of an aqueous-alcohol medium in place of an aqueous one to effect a much more sensitive method for detecting the endpoint in the determination of acid in uranium-containing Redox streams, and the determination of Ca in the presence of plutonium by a Versene method. As a preliminary step to increasing the sensitivity of spectrographic analysis of uranium, a method has been demonstrated for preparing extremely pure uranium for reference standards purposes.

A Fairstein alpha energy analyzer has been assembled and tested, and final tests of the procedure to be employed with the spontaneous fission counter are in progress. Although many improvements of technique and instrument operation are desirable, the two instruments are developed to the point of allowing plutonium isotope determinations on process streams.

A number of economies have been effected in the Analytical Service Section, including more effective use of applies materials, reduction of plant sampling frequencies, and introduction of revised equipment and methods. Procedures are being worked out for the recovery of plutonium in accumulated analytical wastes. Analysis of chemical assay/radio assay values obtained on final 231 Building solutions has indicated the currently accepted isotope correction ratios to be too high, and a new isotope correction chart is being prepared. The system of reporting the precision of analytical control data is being changed, whereby statistical evaluations for customer divisions will consider only data actually used in computing reported analyses.

A Part 2 of Project C-381, requesting the allocation of $4,350,700 for construction of the Radiochemistry Building, was approved by the A & B Committee and forwarded to the AEC. This estimated construction cost was based on 50% completion of the final design. Project Proposal C-421-R, covering design and construction of the rescoped Library & Files Building, also was approved by the A & B Committee and forwarded to the AEC. An allocation of $574,000 is being requested for this reduced scope building.

Good progress was made on the preparation of a Part 2 of Project C-406, covering prompt completion of the Mechanical Development Building for Technical Shops and Design Group occupancy, as required by the Project C-431 need for Building 101 by September 15, 1951.

Sketches of the new Works Laboratory Area Badge House, to be located at the south side of the new area, and the adjacent new parking area, were submitted to the D & C Divisions and accepted as the basis for final design. A separate project proposal covering the necessary 300 Area Power House enlargement was prepared by the Power Division. Funds for this work will be provided largely from those budgeted for the new Laboratory Area.

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Work authorities were issued by the D & C Divisions authorizing the procurement of installed laboratory equipment for the Pile Technology Building. Comments and approvals of the mechanical equipment check prints for the Radiometallurgy Building and of the preliminary prints for the structure of this building were transmitted to the D & C Divisions for forwarding to the architect-engineer.

The Equipment Design Group has accelerated its development of multicurie cell manipulators and operating accessories in preparation for their fabrication and use in the new Redox Laboratory (Bldg. 222-S). Purchased accessories, including a 900-lb. lead glass viewer panel, began to arrive at Building 101 (Hanford) where they are being assembled in connection with the wooden mock-ups of these high-level cells. Contact Engineer liaison with the field engineering of this new building increased markedly, with this construction project about 90% complete.

Renewed interest in the quality of virgin uranium metal supplied to Hanford Works has led to intensified statistical study of the results from billet egg analysis, both chemical and functional. Efforts were directed toward preparation of statistics on this subject for a meeting at the Mallinckrodt Chemical Works, St. Louis, on February 27 and 28. The necessary statistical studies have been considerably simplified by the use of IBM methods of tabulation and computation.

During the past six weeks the computing laboratory has been operating near estimated top capacity of the Card Programmed Electronic Calculator, with little lost time due to shut down. As this new laboratory demonstrates its ability to handle complex computing at high speed, requests for computing services are increasing. The backlog of problems has mounted correspondingly, and additional equipment has been requisitioned. Means for utilizing present equipment on a two-shift basis are under consideration.

HEALTH INSTRUMENT DIVISIONS

The net force was reduced by one. Two Class I and two Class II Special Hazards Incidents were investigated. This was probably commensurate with the increased tempo of operations throughout the plant.

The routine program of environmental hazard control clearly revealed contamination due to the Las Vegas tests. Other phases of monitoring, including biology, showed no deviation from expected patterns.

In bioassay, the apparent body deposition of plutonium in two employees was confirmed, with the reduction in excretion rates in agreement with the Langham formula. The tritium activity density in the urine of an employee involved in one of the Class II incidents was about 400 /uc per liter, the highest obtained to date.

PLANT SECURITY AND SERVICES DIVISIONS

There were no major injuries during the month. The major injury frequency rate for the year to date is 0.39.

There were four fires in the industrial areas with loss amounting to $602.00.

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Laundry volume decreased slightly in the 200-West Laundry and remained approximately the same in the 700 Area Laundry. The new 200-W Area Laundry is now on normal operation and volume is being handled on five shifts per week.

Volume of clerical services rendered increased slightly in all groups except Mail which was somewhat lower than January. The Printing Section achieved a sizable reduction in the backlog of printing orders on hand; however, overtime work continues due to the urgency of some large orders.

The Records Service Center, Building 712, was accepted from sub-contractor with minor exceptions on February 12, 1951.

Improvements in forms and procedures designed by the Office Methods Division resulted in an estimated savings of $2303. of which $1348. will be on a recurring annual basis.

EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

The number of applicants interviewed decreased from 2,002 in January to 1,934 in February. Of these applicants, 1,003 were individuals who applied for employment with the General Electric Company for the first time. In addition, 479 new applications were received through the mail. Open, nonexempt, nontechnical requisitions decreased from 573 at the beginning of the month to 548 at month end. Total plant roll increased from 7,950 to 8,027. Turnover rate increased from 1.48% in January to 1.73% in February. During February, 51 new requests for transfers to other type of work were received in the Employment Office, and 38 transfers were effected. During February, the Employment Office again remained open on Saturdays, with the result of 455 applicants being interviewed on those days, of which 329 were new applicants. Of these, 89 were placed in process and 50 are pending. During February, advertisements were placed in newspapers in the states of Washington, Idaho, Oregon, California, and Colorado and Utah, and spot radio announcements were made over local Washington stations outlining some of our needs for personnel. Recruitment of laboratory assistants was made through contacting interested students in five nearby colleges.

During February, one employee retired. One hundred forty-nine visits were made to employees confined to the local hospital, and 73 salary checks were delivered to employees either confined at the hospital or at home. At the end of February, there were 728 employees registered under the Selective Service Act and 654 military reservists on our rolls. The Employee Services Group organized the plant Red Cross Drive which is to be conducted during March.

A total of 34 supervisors attended the Supervisors' 40-Hour Training Program during the week of February 12, 1951. The 80 supervisors, divided into PMS Groups 9,10, 11 and 12, completed their conferences in February. Start-up of four additional groups, consisting of 60 supervisors, has been announced. Group 13 and 14 were started in February; Groups 15 and 16 will commence their conferences in March. The 8-Hour Non-Exempt Training Program was presented on February 2, to a group of 18 "S" Division employees. Thirty-one supervisors from the Employee and Community Relations Divisions attended a dessert meeting on February 7, at which time there was a review of 1950 accomplishments and a discussion of 1951 objectives. Three issues of SAGE were prepared and mailed during February. A total of 409 members of exempt personnel attended the three-session HOBSO conferences during February.

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A course in EFFECTIVE PRESENTATION is being presented by W. W. Chamberlain through the G-E School of Nuclear Engineering. During February, orientation was given to five re-engaged and 193 new employees. Re-engaged employees indicated 100% participation in the G.E. Insurance Plan, and 81.7% of the new employees signed to participate. Thirty-nine Handbooks were returned and re-issued during the month of February. A total of 24 copies of the book, "Men and Volts" were sold to GE employees during February.

Hill Williams, of the Tri-City HERALD, requested and was provided with the opportunity to interview three Hanford Works officials: C. N. Gross, of Manufacturing Divisions, Dick Foster, of H. I. Biology Division, and R. E. Davison. The interviews resulted in two stories on Manufacturing Divisions, one on the H. I. aquatic laboratory, and one on Davison's responsibility as Civil Defense Coordinator.

News Bureau personnel, and Mina Miller in particular, assisted Leverett Richards, reporter, and Allan Deloy, photographer, from the OREGONIAN, when they spent two days in Richland getting photographs and information for a series of feature stories on Richland.

A total of 62 news releases were written and distributed during February. Four hundred twenty-eight column inches were obtained during January in Pacific Northwest newspapers concerning Richland and Hanford Works. Since November when the News Bureau first started preparing its space report, this is the largest amount of space reported.

Local Kiwanis, Rotary, and Lions Clubs were contacted during the month concerning HOBSO, and following a presentation of the "Appreciation Session" of HOBSO, the boards of directors voted to present the program to the community as a joint venture. The principal of the Richland High School was contacted to introduce HOBSO in the school.

The G.E. Educational Assistance Program was discussed with principals and student counselors of high schools in Richland, Kennewick, Pasco and Benton City. They were furnished bulletin board posters to stimulate students' interest in the G.E. Educational Assistance Program. They were also furnished information on the employment situation and job opportunities at Hanford Works upon their request.

As a result of publicity on the motion picture, "You Can Beat the A-Bomb", over 6,000 people in Richland attended the showings.

During the month, script preparation and development, color slide processing, procurement of projection equipment, art work, text and papers clearances and other assistance was rendered the Manager of Technical Personnel Office and his staff in the development of the program presented to representatives of the American Society of Engineering Education.

A total of 210 radio announcements for procurement of employees were booked with 14 radio stations in Washington, Idaho, and Oregon, in three separate advertising campaigns for the Employment Office.

Requests for photographic services continue to increase steadily. A total of 7,698 prints were produced during February.

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Employee and Community Relations Divisions annual report was produced in the form of a tabloid newspaper, the "E and C R Record," and 1951 objectives were produced in the form of an insert for the newspaper.

Civil Defense activities of Special Programs during the month included production of a bulletin, tickets for showings of "You Can Beat the A-Bomb", a poster publicizing the film, and a brochure explaining the Richland Civil Defense organization.

Recruitment classified advertisements were placed in 12 daily newspapers concerning certain classifications of employees needed, and that the Employment Office will remain open on Saturdays, resulting in 455 interviews on Saturdays during February and 700 written responses.

Recruitment classified advertisements were placed in 21 newspapers extending as far east as Denver for draftsmen and design draftsmen. To date, 500 responses have been received.

During the month of February the Works NEWS carried information on the following subjects: Civil Defense, safety contest in the Maintenance Divisions and Security Patrol; March of Dimes; Red Cross Fund Drive; Charles A. Coffin awards; employees' hobbies; employee sales plan; employment needs at Hanford Works.

Four women's pages appeared in the issues of the Works NEWS during February. More than 200 patterns were distributed to readers as the result of the feature on patterns in the February 2 issue. In the February 16 women's page the General Electric Lamp Department lighting recipes with mats and measurements were featured.

The first arbitration hearing in the history of the HAMTC Contract was held on February 9 in regard to the duties of Janitors and Floor Servicemen. The award, received February 23, approved the Company's position in this case. On February 9, the HAMTC ratified the Company's 3% wage increase offer applicable to the July 2, 1950, rates and retroactive to September 16, 1950. On February 12, the HAMTC gave notice of a desire to reopen the Contract for a wage adjustment. A consent election was held in the North Richland Powerhouse on February 23 with the employees voting ten to six against representation by the HAMTC. The NLRB scheduled a union shop election for March 13, 14 and 15. On February 1, the HAMTC advised the Company that they desired to process an additional case at the arbitration level, involving the work schedule of a carpenter.

The Davis Panel hearing on isolation pay concluded with the Panel requesting the contractors and union to submit weighted average wage information for all crafts since original isolation pay agreement in 1947. Interpretation of existing Wage Stabilization Board regulations allowed the placing into effect previously negotiated increases for Bricklayers, Plumbers, Electrician (Wiremen), Laborers and Operating Engineers. Continued delay in delivery of a vital project order due to a Sheet Metal strike in Portland was avoided by this office in cooperation with Purchasing and Design and Construction. An attempt by this office to induce the Plumbers Union to provide men for certain CPFF work outside the barricade met with failure as a result of a decision of the Union Executive Board. Work Stoppage - On February 27, Plumbers employed by Monterey (Early subcontractor) refused to handle certain pipe and fittings. Monterey has asked that the matter be heard by the Local Joint Board of Negotiators and/or Arbitrators (Master Plumbers and Union).

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The GE Annual Northwest Area Wage Rate Survey was completed and will be printed and distributed to participants next month. The new rate structure for bargaining unit employees, the result of the 5% increase, was calculated and submitted to Payroll on February 19, 1951. Computation of retroactive payments from September 18, 1950, to February 12, 1951, was sent to Payroll on February 24, 1951. A review of nonexempt jobs in the Medical Division was begun. Meetings were held with representatives of the Instrument Division and the HAMTC for the purpose of studying job descriptions within the Instrument Division. A special survey was made of thirty architectural and engineering concerns along the Pacific Coast.

PURCHASING AND STORES DIVISIONS

The Assistant Manager of the Purchasing and Stores Divisions transferred to a position with the Air Conditioning Department at Bloomfield as of February 20, 1951. He will be succeeded by the Transportation Division Superintendent whose transfer becomes effective March 1, 1951.

Although there was a marked decrease in the number of purchase requisitions received in February, i.e. 2,848 compared to 4,357 in January, the total dollar value was roughly only $400,000 less, while the dollar value of construction materials requisitions, representing many items of an extremely critical nature mounted some $200,000 over the January figure. Value of all orders placed this month is $2,397,876.82 compared to the January figure of $2,772,690.22.

Additional equipment for Projects C-187-D, C-187-E, C-361 and C-362 reported as being approximately 90% on order last month is proceeding as developed by final summation of requirements.

Fabrication of equipment for Projects C-361 and C-362 is progressing but with numerous difficulties. Steel supply, corrosion requirements and fabrication tolerances continue to be major problems from the standpoint of acceptance and delivery.

Difficulties on the part of steel mills to meet delivery promises continue. Shipments of stainless steel from the Pittsburgh warehouse total 282,823 pounds. Fifteen additional bulk stainless steel orders were placed during the month.

Corrosion test failures, particularly on Type 304 ELC stainless steel plate, reached an alarming figure resulting in much switching of material from one piece of equipment to another.

Dimensional tolerance requirements were reviewed as a result of an experiment conducted in Building 277-S. It is indicated that some relaxation in specifications may be possible which may permit the acceptance of essentially all vessels.

Preliminary design, construction and procurement schedule for a new production facility, C-431-B, was reviewed. With increasing procurement difficulties many problems are anticipated. The Purchasing Division is preparing a list of the most critical items to assist the Engineering and Construction Divisions in preparing, in logical sequence, the requisitions for materials.

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Negotiations were completed with essential material vendors with the view to increase quantities now on contract to meet additional requirements.

2,533 purchase requisitions were processed through Stores screening with the result that 1,536 items were furnished from plant sources.

Maintenance materials and supplies disbursed from active inventories during the month were valued at $211,517.58.

Incoming shipments received during the month totalled 4,507.

Materials valued at $23,915.22 were withdrawn for Operations use and materials valued at $96,345.43 were declared excess.

Materials and equipment valued at $296,423.69 were withdrawn from Account 10.10 for use on the project.

Evacuation of certain North Richland Warehouses was completed during the month.

Inventory of materials and supplies in the custody of various divisions other than Purchasing and Stores is progressing.

Appropriation request 3-R-A-R, Central Stores Warehousing, was approved by the Appropriation & Budget Committee on February 28, 1951. Project proposal C-490-R-2 was transmitted to the Commission by the committee.

The volume of work in the Traffic Section continued at a high level.

Because of increased requirements of bulk ferric sulphate it was necessary to obtain from the carriers additional covered hopper cars for this service.

Extended negotiations resulted in a lower rate on lime in bulk from Evans, Washington. This reduction will effect a savings of $24 per car.

Suppliers of pure methane gas have been instructed to use the commodity description, "Compressed Hydrocarbon Gas, NOI", on future shipments. This lowers the classification rating from first to third class and currently, on shipments from Borger, Texas and Joliet, Illinois, there will be a saving of approximately $1,500 annually.

Rate reductions currently and previously obtained from the carriers resulted in a savings of $22,380.47 on freight charges during the month. Total savings achieved in this connection from September 1, 1946 to date is $1,471,596.46.

MUNICIPAL, REAL ESTATE AND GENERAL SERVICES DIVISIONS

The Richland Community Council was conducted on a tour of Municipal facilities on February 23, 1951.

The Richland Community Council and School Board elections were held on February 3, 1951. Two Councilmen-at-large and two District Councilmen were elected to the Richland Community Council and one School Board member was elected to the School Board.

Richland tied for first place in the 20,000 to 50,000 population class of the Governor's Traffic Safety Contest.

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The ten prefabricated houses moved from Columbia Camp were renovated and allocated to the master housing list.

Total housing applications ponding - 505.

MEDICAL DIVISIONS

The roll increased from 282 to 288. The increase was in needed nurses.

Dr. B. C. Scudder attended the A.E.C.'s Division of Biology and Medicine meeting in New York City. Mr. O. E. Bakko attended a one day meeting of the Washington State Hospital Association in Seattle. Five public health staff nurses attended a regional tuberculosis control meeting in Yakima.

Employee physical examinations decreased from 2,737 to 2,346. Dispensary treatments decreased from 8,211 to 7,894.

"Overweight" was the very worthwhile health topic for the month.

Sickness absenteeism (weekly employees) increased by 0.26% to 2.43% while total absenteeism increased by 0.34% to 3.04%. Sickness absenteeism (monthly employees) increased by 0.03% to 1.10% while total absenteeism remained constant at 1.46%.

The average daily census at Kadlec Hospital increased from 98.1 to 102.3 (90.7 adults, 11.6 infants). The census was 85.7 a year ago. Daily adult census: Maximum 109, Minimum 67. Occupancy percentage was very high at 88.1% for all adult services. The occupancy was even higher for the mixed services - 94.6%. Such high rates indicate a need to further study of bed requirements as little additional bed space for the mixed services is included in the present hospital construction program. The medical-surgical nursing station was divided into two units, one for medicine and one for surgery. This was necessary because of the continued high census.

Mr. Bakko and Mr. Smith surveyed a number of hospitals in Washington and Oregon whose size and location are comparable to Kadlec. This survey will assist in making proper charges for services and in long range budgeting.

The incidence of communicable disease dropped by 50% but home nursing visits were up 50%, probably indicating a rise in "flu" like upper respiratory infections.

The net cost of operating the Medical Divisions, before assessments to other divisions, was $91,818., an increase of only $363. and $1706. below the budget figure.

While Kadlec Hospital revenue increased by $6,322., expenses increased almost as much due to the following: (1) Increased salary costs $1515, two additional working days, additional overtime; (2) Increase in transferred charges from other divisions, $3505; (3) Increase in supplies, other charges and continuity of service amounting to $694.

Public health costs changed little. Industrial medical operations costs increased by $1862. as detailed in this division's cost analysis.

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GENERAL ACCOUNTING DIVISION

Approximately 1,360 man hours were expended by Payroll Division in preparing individual Employee Benefit Plans Letters showing status in the principal benefit plans. These statements will be mailed to employees on March 9, 1951. As of February 28, 1951, this work was 97% complete.

The 3% general salary increase (minimum 4¢ per hour) applicable to July 2, 1950 rates, effective September 18, 1950, for employees represented by the HAMTC and for employees represented by Local 201, Building Trades Service Employees Union, was paid on a current basis beginning February 12, 1951 to 3,317 employees. The retroactive portion of the General Adjustment covering the period September 18, 1950 through February 11, 1951 will be included in salary checks distributed on March 16, 1951. Approximately 600 man hours were expended during February on the calculation of this retroactive payment.

Considerable additional payroll work resulted from regulations issued by the Wage Stabilization Board.

During the latter part of 1950 we asked the International Business Machine Corporation to assign a representative of their company to make a study and analysis of our payroll practice and procedure and submit a report in sufficient detail for us to determine whether the use of IBM equipment would be more efficient and economical in preparing our payroll than the equipment we are presently using. The present payroll system has been thoroughly explained to the IBM representative and he has spent considerable time in studying our operations. Meetings have been held with representatives of payroll on several occasions to discuss the various phases of operations under the IBM system and considerable volume of statistics concerning our payroll operations have been prepared for use in the study. A report of the study is being prepared and should be completed during March. A study of the report will be made to determine the advisability of using IBM equipment for payroll preparation and statistical information.

Fourth quarter budget reviews and revisions of FY 1951 budget estimates covering Kadlec Hospital, Research and Development, P-10 Program, and Graphite Storage costs were completed early this month and submitted to AEC. Revised estimates were also completed for Cash Working Capital, Inventories, and Operating Equipment. Final instruction relative to preparation and presentation of budgets for FY 1953 were received from AEC and work on these budgets was started.

Internal auditors began audits this month in connection with procedures followed by Employee and Community Relations Divisions in processing of terminated employees and of cash change funds assigned to the School of Nuclear Engineering. Audits were completed and reports are being issued relative to Timekeeping, Hospital Revenue, Bus Revenue, and Receiving and Shipping procedures. Audits of State Business and Occupation Taxes and Stores inventory procedures were continued.

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Advances from AEC increased from $4,000,000 as of January 31, 1951 to $5,000,000 as of February 28, 1951. Advances are accounted for as follows:

	February	January
Cash in Bank - Contract Accounts	$ 4 470 490	$ 3 010 724
Cash in Bank - Salary Accounts	50 000	50 000
Cash in Transit	79 510	428 657
Advances to Subcontractors	300 000	400 000
Travel Advance Funds	100 000	100 000
Expenditures disallowed by A.E.C.	-0-	10 619
Total	$ 5 000 000	$ 4 000 000

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

	February	January
Disbursements		
Material and Freight - GE	$ 2 353 419	$ 2 510 455
Payrolls - GE (Net)	1 972 441	1 941 262
Payments to Subcontractors	3 611 335	3 300 065
Other	1 141 966	992 187
Pension Trust Fund - Company Portion	1 213 300	-0-
Total	$10 292 461	$ 8 743 969
Receipts		
Rents	$ 114 924	$ 145 036
Hospital	52 515	41 747
Telephone	12 795	15 989
Bus Fares	9 199	10 858
AEC Cost-type contractors	6 450	62 559
Other	17 069	39 123
Total	$ 212 952	$ 315 312
Net Disbursements	$10 079 509	$ 8 428 657

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STAFF

General Manager	G. R. Prout
Manager, Schenectady Office	B. R. Prentice
Assistant General Manager	F. K. McCune
Assistant to the General Manager (Technical and Education Matters)	W. I. Patnode
Assistant to the General Manager	J. R. Rue
Assistant to the General Manager and Manager of the Plant Security and Services Divisions	G. G. Lail
Department Comptroller	F. E. Baker
Counsel	G. C. Butler
Manager, Municipal, Real Estate and General Services Divisions	L. F. Huck
Manager, Design and Construction Divisions	W. E. Johnson
Manager, Manufacturing Divisions	C. N. Gross
Manager, Technical Divisions	A. B. Greninger
Manager, Health Instrument Divisions	H. M. Parker
Manager, Medical Division	W. D. Norwood, MD
Manager, Employee and Community Relations Divisions	H. E. Callahan
Manager, Purchasing and Stores Divisions	W. A. Jeffrey

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	EXEMPT		NON EXEMPT		TOTAL	
	1-31-51	2-28-51	1-31-51	2-28-51	1-31-51	2-28-51
GENERAL	19	19	31	31	50	50
LAW	2	2	3	3	5	5
DESIGN & CONST. DIVISIONS						
Const.	1	3	36	38	37	41
Const. Acctg.	11	11	58	62	69	73
Design	233	235	221	211	454	446
No. Richland Realty	17	17	95	97	112	114
MANUFACTURING DIVISIONS						
General	15	15	5	5	20	20
Mfg. Acctg.	7	7	53	56	60	63
Project Engr. Divisions						
Engr. & Control	49	50	35	36	84	86
Design	52	52	74	78	125	130
Production Divs.						
"P"	75	77	291	290	366	367
"S"	137	146	457	456	594	602
Plant Utilities & Maint.						
Power	88	88	479	483	567	571
Maint.	56	56	346	341	402	397
Electrical	54	54	251	249	305	303
Instrument	54	54	223	223	277	277
Transportation	60	60	546	548	606	608
TECHNICAL DIVISIONS						
Administrative	4	4	2	2	6	6
Pile Tech.	115	115	89	96	204	211
Separations Tech.	107	106	38	37	145	143
Technical Services	128	132	334	325	462	457
MEDICAL	49	48	233	240	282	288
HEALTH INST. DIVISIONS						
General	5	6	4	3	9	9
Operational	55	54	171	171	226	225
Development	41	42	76	76	117	118
Biology	33	34	46	42	79	76
ACCTG. DIVISIONS						
Gen. Acctg. & Payroll	26	25	162	163	188	188
EMPL. & COMM. RELATIONS DIV.	36	36	62	65	98	101
PLANT SEC. & SERVICES						
Patrol & Sec.	56	54	539	562	595	616
Safety & Fire	38	38	105	107	143	145
Gen. & Off. Services	23	23	207	224	230	247
PURCHASING & STORES DIVS.						
Purchasing	58	59	77	86	135	145
Stores	20	19	206	216	226	235
COMMUNITY DIVISIONS	213	208	458	456	671	664
TOTAL	1937	1949	6013	6078	7950	8027

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PERSONNEL DISTRIBUTION - FEBRUARY 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	-	-	-	-	-	-	-	-	-	-	19	19
Clerical	-	-	-	-	-	-	-	-	-	-	31	31
Total	-	-	-	-	-	-	-	-	-	-	50	50
LAW	-	-	-	-	-	-	-	-	-	-	2	2
Clerical	-	-	-	-	-	-	-	-	-	-	3	3
Total	-	-	-	-	-	-	-	-	-	-	5	5
DESIGN & CONST. DIVISIONS												
Construction												
Supervisors	-	-	-	-	-	-	-	-	-	3	-	3
Clerical	-	-	-	-	-	-	-	-	-	38	-	38
Total	-	-	-	-	-	-	-	-	-	41	-	41
Const. Acctg.												
Supervisors	-	-	-	-	-	-	-	-	-	11	-	11
Clerical	-	-	-	-	-	-	-	-	-	62	-	62
Total	-	-	-	-	-	-	-	-	-	73	-	73
Design												
Supervisors	-	-	-	-	-	-	3	-	-	24	39	66
Engineers & Inspectors	-	-	-	-	-	-	35	-	-	28	91	154
Other Exempt	-	-	-	-	-	-	-	-	-	9	6	15
Draftsmen	-	-	-	-	-	-	-	-	-	-	52	52
Clerical	-	-	-	-	-	-	10	-	-	25	104	139
Others	-	-	-	-	-	-	-	-	-	9	11	20
Total	-	-	-	-	-	-	48	-	-	95	303	446

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HW-20438 DEL

	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	-	-	-	-	-	-	-	-	-	17	-	17
Janitors	-	-	-	-	-	-	-	-	-	43	-	43
Clerical	-	-	-	-	-	-	-	-	-	17	-	17
Others	-	-	-	-	-	-	-	-	-	37	-	37
Total	-	-	-	-	-	-	-	-	-	114	-	114
MANUFACTURING DIVISIONS												
General												
Supervisors	-	-	-	-	-	-	-	-	-	-	9	9
Engineers	-	-	-	-	-	-	-	-	-	-	6	6
Clerical	-	-	-	-	-	-	-	-	-	-	5	5
Total	-	-	-	-	-	-	-	-	-	-	20	20
Mfg. Accounting												
Supervisors	-	-	-	-	-	-	-	-	-	-	7	7
Clerical	-	-	-	-	-	-	-	-	-	-	56	56
Total	-	-	-	-	-	-	-	-	-	-	63	63
PROJ. ENGR. DIVISIONS												
Proj. Engr. Control												
Supervisors	3	-	-	-	-	3	-	1	4	-	10	21
Engineers	6	-	-	-	-	7	-	6	3	-	7	29
Clerical	1	-	-	-	-	1	-	1	9	-	11	23
Others	3	-	-	-	-	1	-	-	1	-	8	13
Total	13	-	-	-	-	12	-	8	17	-	36	86
Proj. Engr. Design												
Supervisors	-	-	-	-	-	1	-	-	-	-	17	18
Engineers	-	-	-	-	-	3	-	-	-	7	24	34
Draftsmen	-	-	-	-	-	4	-	-	-	5	41	50
Clerical	1	-	-	-	-	1	-	-	-	1	10	13
Others	-	-	-	-	-	-	-	-	4	1	10	15
Total	1	-	-	-	-	9	-	-	4	14	102	130

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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
PRODUCTION DIVISIONS												
"P"												
Supervisors	7	18	8	10	-	-	-	14	-	-	2	59
Supv. in Training	3	1	-	-	-	-	-	2	-	-	-	6
Engineers	2	-	1	-	-	-	-	-	-	-	9	12
Operators	34	64	34	34	-	-	-	102	-	-	-	268
Clerical	2	4	2	2	-	-	-	4	-	-	4	18
Others	-	1	2	1	-	-	-	-	-	-	-	4
Total	48	88	47	47	-	-	-	122	-	-	15	367
"S"												
Supervisors	-	-	-	-	-	15	37	12	-	-	5	69
Supv. In Training	-	-	-	-	-	8	20	9	-	-	-	37
Engineers	-	-	-	-	-	-	31	-	-	-	9	40
Operators	-	-	-	-	-	129	233	52	-	-	-	414
Clerical	-	-	-	-	-	6	18	-	-	-	6	30
Others	-	-	-	-	-	7	5	-	-	-	-	12
Total	-	-	-	-	-	165	344	73	-	-	20	602
PLANT UTILITIES & MAINT.												
Power												
Supervisors	12	18	12	12	-	6	7	7	3	-	1	78
Engineers	-	-	-	-	-	-	2	-	6	-	2	10
Operators	74	114	73	74	14	21	54	11	9	-	-	444
Clerical	1	1	1	1	-	-	1	-	6	-	2	13
Others	4	6	5	4	-	-	5	2	-	-	-	26
Total	91	139	91	91	14	27	69	20	24	-	5	571

DECLASSIFIED HW-20438 DEL

	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
Maintenance												
Supervisors	1	7	7	2	-	4	16	5	1	-	1	44
Engineers	-	-	2	-	-	-	2	1	-	-	7	12
Craftsmen	24	59	54	19	-	34	93	39	-	-	-	322
Clerical	-	2	2	1	-	1	3	2	1	-	1	13
Others	-	1	1	1	-	1	1	1	-	-	-	6
Total	25	69	66	23	-	40	115	48	2	-	9	397
Electircal												
Supervisors	2	1	1	3	-	1	6	2	17	-	11	44
Engineers	-	-	-	1	-	-	1	1	3	-	4	10
Craftsmen	15	17	14	12	2	10	19	10	58	-	26	183
Clerical	1	-	1	1	-	-	1	1	4	-	26	35
Operators	4	4	4	4	-	-	-	-	11	-	-	27
Others	-	-	-	1	-	-	-	-	2	-	1	4
Total	22	22	20	22	2	11	27	14	95	-	68	303
Instrument												
Supervisors	2	5	2	3	-	2	6	8	1	-	3	32
Engineers	1	1	-	-	-	-	3	10	1	-	6	22
Craftsmen	16	25	16	11	-	19	53	41	4	-	10	195
Clerical	-	2	1	1	-	1	3	7	3	-	3	21
Others	-	-	-	-	-	-	-	7	-	-	-	7
Total	19	33	19	15	-	22	65	73	9	-	22	277

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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
Transportation												
Supervisors	2	4	1	2	-	2	1	1	8	-	35	56
Engineers	-	-	-	-	-	-	-	-	-	-	4	4
Bus Drivers	-	-	-	-	-	-	-	-	-	-	162	162
Journeymen	2	6	3	11	-	1	4	-	11	-	65	103
Trainmen	-	-	-	-	-	-	-	-	25	-	-	25
Serviceman	1	8	1	2	-	3	5	1	16	-	19	56
Clerical	1	1	1	1	-	1	1	1	1	-	25	33
Equipment Operators	4	9	3	4	-	4	7	4	18	-	27	80
Others	8	10	2	4	-	13	4	2	8	-	38	89
Total	18	38	11	24	-	24	22	9	87	-	375	608
TECHNICAL												
Administrative												
Supervisors	-	-	-	-	-	-	-	-	-	-	4	4
Clerical	-	-	-	-	-	-	-	-	-	-	2	2
Total	-	-	-	-	-	-	-	-	-	-	6	6
Pile Technology												
Supervisors	3	1	1	1	3	-	-	11	-	-	-	20
Metallurgists & Engr.	20	3	2	4	13	-	-	28	-	-	3	73
Physicists	1	1	3	3	2	-	-	12	-	-	-	22
Tech. Grads.	11	2	1	2	5	-	-	3	-	-	-	24
Technologists	5	-	-	-	-	-	-	-	-	-	-	5
Laboratory Assts.	18	4	1	6	5	-	-	12	-	-	1	47
Clerical	4	-	-	1	1	-	-	10	-	-	3	19
Engr. Asst.	-	-	-	-	-	-	-	1	-	-	-	1
Total	62	11	8	17	29	-	-	77	-	-	7	211

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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 Technology												
Supervisors	-	-	-	-	-	1	4	17	-	-	1	23
Chemist & Chem. Engrs.	-	-	-	-	-	5	13	62	-	-	3	83
Tech. Grad.	-	-	-	-	-	-	1	6	-	-	-	7
Clerical	-	-	-	-	-	-	3	4	-	-	1	8
Chem. Operators	-	-	-	-	-	-	1	7	-	-	-	8
Others	-	-	-	-	-	-	2	12	-	-	-	14
Total	-	-	-	-	-	6	24	108	-	-	5	143
Technical Services												
Supervisors	1	-	-	2	5	6	12	24	-	-	3	53
Chemists & Engrs.	6	1	1	2	9	2	15	39	-	-	4	79
Technologists&Tech.Grads	3	-	-	-	1	7	18	17	-	-	-	46
Laboratory Assts.	3	-	-	5	-	28	57	40	-	-	-	133
Clerical	-	-	1	1	2	2	3	45	-	-	39	93
Others	-	-	-	-	34	-	-	18	-	-	1	53
Total	13	1	2	10	51	45	105	183	-	-	47	457
MEDICAL												
Supervisors	-	-	-	-	-	-	-	-	-	1	27	28
Physicians	-	-	-	-	1	-	-	-	-	2	9	12
Other Exempt	-	-	-	-	-	-	-	-	-	-	8	8
Technicians	1	-	-	-	-	-	-	-	-	3	15	19
Nurses	2	5	4	1	3	4	6	2	-	2	59	88
Clerical	2	-	-	-	-	-	1	-	-	7	49	59
Others	-	-	-	-	-	-	-	-	-	1	73	74
Total	5	5	4	1	4	4	7	2	-	16	240	288

DECLASSIFIED HW - 20438 DEL

	100-B Area	100-D Area	100-F Area	100-H Area	101 Area	200-E Area	200-W Area	300 Area	Plant General	3000 Area	700-1100 Area	Total
HEALTH INST. DIVS.												
General												
Supervisors	-	-	-	-	-	-	-	-	-	-	3	3
Engineers	-	-	-	-	-	-	-	-	-	-	3	3
Clerical	-	-	-	-	-	-	-	-	-	-	3	3
Total	-	-	-	-	-	-	-	-	-	-	9	9
Operational												
Supervisors	1	1	1	2	-	1	5	8	-	-	2	21
Other Exempt	4	7	4	4	-	4	7	3	-	-	-	33
Clerical	-	-	-	1	-	-	1	1	-	-	1	4
Others	17	15	13	9	-	18	38	47	8	-	2	167
Total	22	23	18	16	-	23	51	59	8	-	5	225
Development												
Supervisors	-	-	-	-	-	3	7	4	-	-	1	15
Engineers	-	-	-	-	-	1	12	13	-	-	1	27
Clerical	-	-	-	-	-	1	2	2	-	-	-	5
Others	-	-	-	-	-	16	30	12	-	-	13	71
Total	-	-	-	-	-	21	51	31	-	-	15	118
Biology												
Supervisors	-	-	7	-	-	-	-	-	-	-	-	7
Engineers	-	-	27	-	-	-	-	-	-	-	-	27
Clerical	-	-	3	-	-	-	-	-	-	-	-	3
Others	-	-	39	-	-	-	-	-	-	-	-	39
Total	-	-	76	-	-	-	-	-	-	-	-	76

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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												
Supervisors	-	-	-	-	-	-	-	-	-	-	7	7
Other Exempt	-	-	-	-	-	-	-	-	-	-	1	1
Clerical	-	-	-	-	-	-	-	-	-	-	84	84
Total	-	-	-	-	-	-	-	-	-	-	92	92
Gen. Acctg. Acctg.												
Supervisors	-	-	-	-	-	-	-	-	-	1	7	8
Other Exempt	-	-	-	-	-	-	-	-	-	1	8	9
Clerical	-	-	-	-	-	-	-	-	-	-	79	79
Total	-	-	-	-	-	-	-	-	-	2	94	96
EMPLOYEE & COMM. RELATIONS												
Supervisors	-	-	-	-	-	-	-	-	-	-	25	25
Employee Rel. Counselor	-	-	-	-	-	-	-	-	-	-	1	1
Other Exempt	-	-	-	-	-	-	-	-	-	-	10	10
Clerical	-	-	-	-	-	-	-	-	-	-	53	53
Others	-	-	-	-	-	-	-	-	-	-	12	12
Total	-	-	-	-	-	-	-	-	-	-	101	101
PLANT SEC. & SERVS. DIVS.												
Patrol & Security												
Supervisors	5	6	6	5	-	5	7	7	6	-	3	50
Other Exempt	-	-	-	-	-	-	-	-	4	-	-	4
Patrolman	59	49	65	42	-	60	141	87	11	-	28	542
Clerical	-	-	-	-	-	-	-	-	16	-	2	18
Seamstress	-	-	-	-	-	-	-	-	2	-	-	2
Total	64	55	71	47	-	65	148	94	39	-	33	616

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HW-20438 DEL

	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	7	-	-	29
Engineers	-	2	-	1	-	2	-	2	-	-	2	9
Firemen	48	-	-	-	8	-	20	16	9	-	-	101
Clerical	-	1	-	1	-	1	-	1	-	-	2	6
Total	62	3	-	2	8	3	24	23	16	-	4	145
Gen. & Off. Services												
Supervisors	-	-	1	-	-	1	1	1	1	-	18	23
Laundry Operators	-	-	-	-	-	-	1	-	-	-	1	2
Janitors & Serviceman	7	5	4	6	2	4	17	12	4	-	38	99
Clerical	-	-	-	-	-	-	-	-	-	-	34	34
Others	-	-	-	-	-	-	32	-	-	-	57	89
Total	7	5	5	6	2	5	51	13	5	-	148	247
PURCHASING & STORES DIVISIONS												
Purchasing												
Supervisors	-	-	-	-	-	-	-	-	-	-	14	14
Other Exempt	-	-	-	-	-	-	-	-	20	-	25	45
Clerical	-	-	-	-	-	-	-	-	-	-	80	80
Rotational Trainee	-	-	-	-	-	-	-	-	6	-	-	6
Total	-	-	-	-	-	-	-	-	26	-	119	145
Stores												
Supervisors	2	-	-	-	-	-	-	-	-	3	14	19
Clerical	13	-	-	-	-	-	-	-	-	25	58	96
Others	25	-	2	-	-	-	1	-	-	10	82	120
Total	40	-	2	-	-	-	1	-	-	38	154	235

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HW - 20438 DEL

	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
MUNICIPAL REAL ESTATE												
GEN. SERVICES. GOV., ACCT. & ENGR.												
Supervisors	-	-	-	-	-	-	-	-	-	4	105	109
Other Exempt	-	-	-	-	-	-	-	-	-	8	32	40
Firemen	-	-	-	-	-	-	-	-	-	25	34	59
Patrolmen	-	-	-	-	-	-	-	-	-	15	21	36
Journeymen	-	-	-	-	-	-	-	-	-	-	176	176
Servicemen	-	-	-	-	-	-	-	-	-	-	35	35
Truck Drivers	-	-	-	-	-	-	-	-	-	-	39	39
Power Operators	-	-	-	-	-	-	-	-	-	-	34	34
Clerical	-	-	-	-	-	-	-	-	-	-	79	79
Others	-	-	-	-	-	-	-	-	-	-	57	57
Total	-	-	-	-	-	-	-	-	-	52	612	664
GRAND TOTAL	512	492	440	321	110	482	1152	957	332	445	2784	8027

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HW - 20438 DEL

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MANUFACTURING DIVISIONS

FEBRUARY 1951

SUMMARY

Production Divisions

A total of 82 tons of metal was discharged at the goal value. The special request program required 330 manhours of effort by the P Division. Twenty-three tubes of special request material were charged into the piles and the material from 29 tubes was discharged from the piles and shipped off site. An additional 175 manhours were utilized in charging, discharging, and shipping Chemical 68-56.

The average time operated efficiency was 89.4 percent. Four days were lost at H pile in removing a ruptured uranium slug and a one day outage was experienced at all five piles because of a high voltage line pole fire. A second ruptured slug was removed from the H pile during this outage.

All piles gained in maximum operating level during February as follows: B pile from 395 MW to 415 MW, D pile from 370 MW to 385 MW, DR pile from 463 MW to 484 MW, H pile from 485 MW to 500 MW, and F pile from 320 MW to 380 MW. Average levels were 387 MW, 360 MW, 448 MW, 469 MW, and 375 MW, respectively. Total pile production in February was 6.5% more than the January production.

A total of 82 tons of acceptable slugs was canned at a yield of 91.2 percent. The machining yield was 81.6 percent. The melt plant produced 17 tons of billets at a yield of 86.7 percent and a solid metal yield of 93.9 percent.

A total of 122 charges plus two acid washes was started in the Canyon Buildings, 121 plus two acid washes were completed through the Concentration Buildings and 124 charges were completed through the Isolation Building. The average cooling time was 63 days. The average purity of completed charges was 98.2 percent.

Plant Utilities and Maintenance Divisions

The electric power demands for the month were:

Process - 2-1-51 (9:30 - 10:00 A.M.)	69,000 KW
Village - 2-1-51 (5:00 - 5:30 P.M.)	31,500 KW
	100,500 KW

Although not coincidental, the total represents a new all time high power demand established by record process load demand.

Unscheduled interruptions of production resulted from electrical outages and equipment failures as follows:

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(1) Pole top fire on 230 KV structure near 251 Substation on February 18 resulted in Critical Power Grade Y in all areas for a period of 20 hours.

(2) During start up of 105-F on February 20, three 800 HP process pump motors failed - 10 hours required for replacement.

Between February 9 and 13, raw water turbidities increased to a maximum of 240 ppm with an all time high for raw water iron of 5.3 ppm. Filter operation difficulties were experienced. The previous maximum turbidity for the month of February was 100 ppm.

The prolonged nationwide railroad strike reduced cars handled 34%. It was necessary to furlough 16 railroad operating and maintenance personnel until normal car movements were resumed.

Lubrication specifications for all new facilities are proceeding on schedule.

C. N. GROSS, MANAGER
MANUFACTURING DIVISIONS

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MANUFACTURING DIVISIONS

PATENT REPORT SUMMARY
FOR
MONTH OF FEBRUARY 1951

Richland, Washington
March 12, 1951

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

INVENTOR	TITLE
J. H. Rector Maintenance Division	Segmental Discharge - Gripper Slug - Set Screw Type
Robert Willing Engineering and Control Division Project Engineering Divisions	AN IMPROVED SAFETY GUARD FOR ROTATING RODS. An attachment for the purpose of restricting the hazardous whipping action of long, out-of-line rods as they feed a Medart straightener has been devised. It has proved effective in use and has materially lessened the straightener operator's exertion during rod-loading.

C. N. GROSS, MANAGER

MANUFACTURING DIVISIONS

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Section 10 Approved by W. E. Dunbar for
W. K. Woods, Division Head
Pile Technology Division
Technical Divisions

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March 8, 1951

P DIVISION

FEBRUARY, 1951

I. GENERAL

New maximum operating levels were attained at all five piles, representing significant production gains; however, several unscheduled outages prevented the realization of the full production potential of these level increases. A four day outage was necessary at H Pile to remove a ruptured uranium slug and a one day outage was experienced at all five piles because of an electrical failure resulting from a high voltage line pole fire. During this latter outage, a ruptured P-10-A slug was discovered in H Pile and discharged.

The average time operated efficiency for all piles was 89.4%. The total number of outage hours for all piles was 356.8. Of this amount, 87% is chargeable to plutonium production and 13% is chargeable to other irradiation programs.

The following gains in maximum operating levels were achieved during the month: B Pile was raised from 395 MW to 415 MW, D Pile was raised from 370 MW to 385 MW, DR Pile was raised from 463 MW to 484 MW, H Pile was raised from 485 MW to 500 MW and F Pile was raised from 325 MW to 380 MW. This represents a total gain of 126 MW/day over previously reported maximum operating levels, and a total maximum level for all five piles of 2164 MW.

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II. ORGANIZATION AND PERSONNEL

Number of Employees on Payroll - February, 1951

Beginning of Month -	369
End of Month	367
Net Decrease	2

A P Division Supervisor's Training School for new supervisors was initiated February 19. The current program is planned for a two week period and features a formal and comprehensive coverage of all aspects of 100 Area process and supervisory know-how. The school consists of guided group study, lectures by experienced supervisors and conducted tours of related operating areas.

E. F. Stell and W. J. Gartin were promoted to Supervisors-in-Training from Technical Graduate status. This brings the total number of supervisory trainees in the P Division to seven.

Changes occurring in the rotational training program during the month included the addition of one Rotational Pool Technical Graduate bringing the total number currently assigned to the division to three. Present indications are that this program must be greatly expanded in the near future in order to provide a supervisory staff for anticipated new facilities.

G. B. Carlton, Assistant Chief Supervisor, 100-F Area, terminated voluntarily on February 9 to accept employment elsewhere.

I. L. Huffman, W. J. Tupper and C. R. Barker were promoted from Shift Supervisors to Area Supervisors effective February 1, 1951.

W. A. Cease, J. A. Finn and C. W. Richards were promoted from Supervisors-in-Training to Shift Supervisors effective February 1, 1951.

Four operators were hired in the 300 Area. Five operators from the 300 Area and one General Clerk C from the 300 Area terminated voluntarily.

Mr. R. O. Mehann left on February 26 for a week's visit to the University of California at Los Angeles and the University of Southern California to assist in the procurement of technical personnel.

Mr. E. W. O'Rorke left on February 26 for a week's trip to attend the Metal Quality meeting in St. Louis, Missouri. He also spent one day at Argonne National Laboratory in Chicago, Illinois.

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P Division

III. AREA ACTIVITIES

Pile Summary	Pile B	Pile D	Pile DR	Pile H	Pile F
Time Operated Efficiency (%)	92.6	87.6	96.6	77.4	92.7
Average Power Level (MW)	387	360	448	469	357
Maximum Power Level (MW)	415	385	484	500	380
*Inlet Water Temperature (°C.)	4.4	4.4	4.2	4.4	4.4
*Outlet Water Temperature (Max. °C., 10 tubes, 0.240" Zone)	63.4	60.3	71.0	63.3	56.3
Number of Scrams	0	0	1	3	0
Number of Purges	2	1	1	1	1
CO_2 Consumption (cu. ft.)	46,104	76,296	60,792	56,319	102,000
CO_2 Concentration	97	96.7	97.4	91.6	96.6
Metal Discharged (tons)	29.27	33.10	0.38	7.19	11.65
Inhours Gained (this month)	2	-25.5	52.7	-16	8
*Inhours Poisoned	508	521.5	279.4	70	488
*Inhours in Rods	81	70	121	107	74
Maximum Graphite Temperature	370	378	293	394	385

* Month end figures.

PILE BUILDING

Outage Breakdown

Date of Outage	Scheduled: Metal Discharged	Scheduled: Maintenance	Unscheduled	Length of Outage (Hours)
(1) 2-2-51			H	91.6
(2) 2-3-51			DR	0.3
2-7-51	B			25.0
(3) 2-9-51			H	0.4
2-12-51	H			29.8
(4) 2-14-51			H	1.6
2-14-51	D			58.1
(5) 2-18-51			H	28.1
(6) 2-18-51			F	35.9
(7) 2-18-51			D	25.4
(7) 2-18-51			B	24.5
(7) 2-18-51			DR	22.2
(8) 2-20-51			F	13.4
(9) 2-24-51			H	0.3

(1) Unscheduled outage to remove ruptured uranium slug from tube 2562-H.

(2) Unscheduled outage due to panellit alarm which could not be reset.

(3) Unscheduled outage due to unexplained automatic trip of safety circuits by P-13 equipment for Production Test 105-354-P.

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(4) Unscheduled outage due to electrical power failure at Building 151.

(5) Unscheduled outage due to failure of electrical distribution system. Outage extended to permit removal of a ruptured P-10-A slug from tube 3177-H.

(6) Unscheduled outage due to failure of electrical distribution system. Outage extended to discharge metal and complete removal of Production Test No. 105-391-P (Preliminary Experiments for Determination of Graphite Burnout and Transport).

(7) Unscheduled outage due to failure of electrical distribution system.

(8) Unscheduled outage due to failure of three process water pumps in Building 190.

(9) Unscheduled outage due to trip of safety circuit by unexplained surge on No. 1 Beckman.

Operating Experience

Production tests having operational significance are reported below:

105-338-P (Pile Test of Special Step Plug and Gas Seal)
The balls were removed from one flute of the ball type 3X step plug installation at #20 vertical rod in the D Pile on February 14. Operation without the balls in the flute was satisfactory. On February 18, the balls were removed from the other flute. A maximum radiation increase of about 30% was noted with the balls removed from both flutes; however, the final radiation measurements were still somewhat less than those obtained from other rods with regular step plugs. It is felt that this feature can be utilized in the final design of ball 3X equipment. This will allow placement of the release mechanism outside the pile where it can be inspected and tested.

105-103-P (Corrosion Rates at Elevated Temperatures, Supplement D)
At F Pile three tubes which have been operating at elevated temperatures were discharged and returned to normal service during the month. The remaining sixteen tubes are continuing in operation at reduced flows without difficulty.

105-354-P (Operation of ANL-140 with Fuel Installed)
Operation of H Pile was interrupted for 0.4 hour on February 9 due to a trip of the P-13 safety

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circuit. The cause could not be definitely established. A production loss of 53 MWD resulted, bringing the total loss attributable to the P-13 project to 2411 MWD.

105-317-P (Process Tube Purge During Pile Operation)
The DR Pile was successfully purged with solids for one hour on February 7 while operating at a level of 200 MW.

105-372-P (Measurement of Vertical Graphite Expansion at Near and Far Sides - B, D, and F Piles)
Measurements taken at D Pile on February 19 show an additional decrease in the elevation of the central portion of the pile indicating a continuation of graphite annealing.

105-407-P (Pile Test of Magnesium Front Dummies)
During the month, solid magnesium dummy charges were installed in the front end of four process tubes at B Pile and ten process tubes at H Pile. These installations will serve as pilot lots to provide data for evaluating the use of solid magnesium dummy charges in the front of all pile process tubes. Installation of magnesium front dummies is expected to prevent further corrosion of the front section of process tubes.

105-402-P (Effect of Water Vapor Concentration of Pile Gas Equilibria)
At H Area, the use of the silica gel driers in the gas circulation system was discontinued temporarily on February 26 in accordance with the provisions of this test. No unusual operational effects were observed, and the test is being continued at month end. It is expected that the data obtained may aid in solving the graphite burnout problem.

105-391-P (Preliminary Experiments for Determination of Graphite Burnout and Transport)
Graphite samples which were charged into tube 2682-F on December 6, 1950, were discharged on February 19 and additional samples were charged. No operational difficulty has been experienced with this equipment.

105-414-P (Graphite Temperature - Thimble Temperature Correlation)
The thermocouple installation inserted in 24-F vertical rod hole during January was removed on February 19, and a thimble equipped with thermocouples was installed in the hole. The 24-F vertical rod was returned to service.

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P Division

Work in connection with the special request program continued undiminished during February with approximately 300 manhours of time expended by the P Division on this work. Twenty-three tubes of special request material were charged into the piles for irradiation. Twenty-nine tubes of irradiated samples were shipped off site. In addition, approximately 175 manhours were required for the charging, discharging and shipping of Chemical 68-56.

A total of 81.59 tons of uranium slugs was discharged during the month of which 0.62 tons was at 50% of the nominal goal value concentration and 80.97 tons at 100% of goal value.

An unscheduled outage of 91.6 hours duration occurred at the H Pile on February 2 due to a ruptured uranium slug in tube 2562-H. Removal of the tube was necessary in order to effect removal of the slug. The resulting effluent water contamination was confined to one side of the retention basin by pumping basin effluent water directly to the earth crib provided. Details of the incident are reported in document HW-20270, "Removal of Ruptured Slug From Tube 2562-H".

An unscheduled outage was initiated in all 100 Areas on February 18 due to failure of the electrical distribution system caused by a pole fire on a high voltage line. The resulting critical power condition was corrected within 17.6 hours; however, due to transient poison conditions and special work commenced in order to take advantage of down time, startup of the piles was delayed beyond this time as reported under Pile Outage Breakdown.

During the outage resulting from the electrical distribution failure, the investigation at H Area of a slight change in panellit pressure on tube 3177-H revealed that the H-10 loading with which the tube was charged had become stuck and could not be moved. A ruptured and distorted P-10-A target slug was found to be the cause of the stuck charge. It was necessary to cut away the ribs in the tube before the piece could be discharged. A check was made of 43 additional tubes which were loaded with H-10; none were found to be stuck. Document HW-20400, "Removal of Ruptured and Deformed P-10 Target Slug from Tube 3177-H", describes the incident in detail.

At F Area, during startup on February 20, three of the twelve process water supply pump motors in the 190 Building failed, necessitating repair of one pump before the pile could be operated. Thirteen and four-tenths hours of outage time resulted from this failure. Eleven pumps are in satisfactory operating condition at month end and repairs are being made on the twelfth pump motor.

During the month, the DR Pile continued to gain in reactivity. Approximately 93 inhours of flattening were added, resulting in pile level gains of 15 to 20 MW.

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P Division

Mechanical Experience

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

a. Horizontal control rod A at 100-D Area binds in several positions. This condition is scheduled for investigation in March.

b. Vertical safety rod 20-DR cannot be lowered into the pile under power although it drops normally when scrammed. Repairs are planned for a subsequent outage.

c. Horizontal rod 6-F binds slightly due apparently to some horizontal misalignment of the rod track. Further adjustments are planned.

During the outage of February 19 at B Pile, tube 3060-B was damaged in the course of charging operations. It was removed from service and a new tube will be installed during a subsequent outage.

The following 2-S unclad aluminum tubes were replaced during the month with 72-S clad tubes; 2178-B, 1385-D, 3188-D, 3676-D, 4376-D. This is in accordance with the P Division program for replacement of all unclad 2-S aluminum tubes in the piles.

Additional emphasis has been placed on training personnel in the operation of the tool dollies at the DR and H Areas. A program of practice operation of the dollies by remote control during pile operation has been initiated.

Temporary repairs to the 107-DR east basin are in progress at month end. Repairs to the 107-H west basin are essentially complete. Following completion, the 107-H east basin will be repaired.

Ground surface leaks have been observed in the 100-D effluent line at the inlet end of the 107-D basin. Excavation revealed two cracked sections in the effluent line. No attempt was made to seal the leaks, but the excavation was extended away from the line, lined with coarse gravel to provide drainage, and the earth was replaced over the line. Further examination will be made when weather conditions permit.

Gas Processing

The equipment for unloading and storing helium at H Area was placed in operating condition during the month and a tank car of helium was unloaded to high pressure storage tanks.

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P Division

Pile Development

During the month, the 115 Building elevated cooling water tank at D Area was removed from service. Experience has indicated that the need for this equipment is negligible. As a sure protection against possible equipment damage, an alarm was installed in the Building 105 control room so that in the event of filtered water supply failure, all equipment can be shut down until the condition is corrected. This does not interfere with pile operation.

Considerable effort has gone into the improvement of operating techniques designed to increase production. Wherever possible, discharges are being consolidated and combined to reduce down time. As an aid in speeding the pick up of special request pieces from the basins, Ucon, a completely soluble (transparent) oil, is used as a tube lubricant when a number of separate special request charges are picked up in sequence. Startup methods are being scrutinized for possible improvement from a production standpoint. The feasibility of a solids purge for film removal during pile operation has been demonstrated and is expected to result in production gains.

An improved method of pile level increase during a "cut-back" type of startup was evaluated at D Area following the outage of February 14. Following the peak of maximum pile reactivity under certain startup conditions it has been the practice to make the first level increase in 50 MW steps at five hour intervals. By increasing steadily 1 MW every five minutes, a slightly greater rate of rise was found to be practicable. It was possible in this instance to raise from a 150 MW "cut-back" level to 350 MW in 15.7 hours instead of 20 hours. An increase of 13.7 MWD production was thereby achieved.

Special Hazards

The radioactive vapors reported last month in the vicinity of the No. 3 drain at the 105-B storage basin were investigated during the outage of February 14. Excavation revealed that the concrete drain box had pulled away from the storage basin. The box was braced and the gap filled with lead wool and concrete. Significant improvement was noted following startup, but the condition has not yet been entirely corrected.

The 107-DR east basin was successfully decontaminated during the month, following contamination by a ruptured slug in tube 3188-DR as reported in January.

Process Control

In addition to making routine production forecasts, approximately 40 manhours of time were expended in the preparation of a special production, materials and manpower study for the Atomic Energy Commission. This study was used in consideration of a proposal for increasing product enrichment to 600 MWD/ton.

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P Division

As a result of NPA directives, it has been necessary to review and scrutinize all inventories of essential materials. Material requirement forecasts have been studied and adjusted to conform to NPA regulations. Reports covering these requirments have been forwarded through channels.

Project Status

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

C-330 (Improved Ventilation - Building 313-314) (Engineering and development only.)
A program has been agreed upon which will permit completion of this project by July 1, 1951.

M-713 (Flexible Vertical Rod)
The full scale rod has been fabricated and is scheduled for installation in the D Pile on March 7 for test purposes.

C-411 (J Slug Storage and Shipping Facilities)
Due to curtailment of this program, revisions in the scope of the project are currently being considered.

C-412 (P-10X Extraction Facilities)
End user responsibility for this project has been transferred to the Technical Divisions.

C-420 (CO_2 Bulk Handling Facilities)
Funds for this project have been approved, but construction work has not yet commenced.

B-803 (High Tank Control Valves - 100-B, D, F, and H Areas)
Further work has been discontinued pending changes in operating procedure which will drastically revise the scope of this project.

C-321 (Effluent Diversionary Outlet, 107-B, D, F)
The scope of this project has been revised and a re-estimate for budget purposes is in progress.

M-825 (Mechanical Feeds for Building 313 Turning Lathes)
The materials are on hand and installation will begin about March 5.

M-826 (Crossheader Pressure Monitoring - 105-H)
Preliminary work for the installation of a system for measuring operating crossheader pressures at H Pile has been done.

M-829 (D-DR Safety Circuit Interlock)
Installation not yet started but is planned for March.

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P Division

B-1841 (Ball 3X System)
Schedule and cost estimates are being prepared.

B-544-R (Steel Process Sewer - 105-107-B)
An engineering survey has been completed and is being studied.

C-431 (Design of New Reactor)
Directive HW-222, dated January 30, 1951, has been received authorizing the following work:

a. Design of a new reactor with necessary water works and appurtenances.

b. Preparation of a project proposal covering design and construction of these items.

c. Procurement of critical items.

300 AREA - METAL FABRICATION

OPERATING SUMMARY

Uranium Fabrication	January	February	To Date 1951
Billets Produced (Tons	20	17	37
Bare Pieces Machined (Tons)	99	85	184
Briquettes Produced (Tons)	14	12	26
Oxide Burned (Weight Out - Tons)	4	3	7
Acceptable Pieces Canned (Tons)	94	82	176
Melt Plant Billet Yield (%)	88.2	86.7	87.5
Melt Plant Solid Yield (%)	92.8	93.9	93.3
Machining Yield (%)	81.9	81.6	81.8
Chip Recovery Yield (%)	88.4	87.6	88.0
Canning Yield (%)	91.2	91.2	91.2
Autoclave Failure Frequency (No./M)	0.19	0.17	0.17

*P-10-A Fabrication

Billets Produced (lbs.)	945.0	209.5	1,154.5
Slugs Processed (No. of pieces)	1,517	577	2,094
Billet Yield (%)	89.2	89.2	89.2
Machining Yield (%)	81.8	82.6	81.9
Canning Yield (%)	98.5	97.5	98.1

*Since P-10-A slug fabrication was discontinued on February 6, 1951, the above represents the final operating summary and it will be omitted in future reports.

OPERATING EXPERIENCE

Machining

The slightly lower yield for February resulted from the sub-

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standard quality of U type rods. These rods were found to have seams and surface imperfections which did not clean up during machining.

Canning

The over-all canning yield for February was the same as reported for January. From a total of 46,048 canned slugs inspected, 2.4% were rejected for marred surface, 1.9% for non-seating, 0.9% for poorly bonded caps, 0.7% for defective cans and 2.9% for miscellaneous reasons.

Non-seating rejects continued to be sporadic. As in the past, it was not possible to associate non-seating with specific process or operating conditions. Test runs made on aluminum silicon received from different vendors failed to reveal any correlation between non-seating and the Al-Si used in the canning baths.

On February 1, a separate classification (Defective Cans) was established for rejects resulting from fabrication defects in aluminum cans that do not become apparent until the cans have been processed. Rejects of this type were previosuly classified as marred surface. During the latter part of the month, rejects for defective cans ranged as high as 4.7% on individual canning lots while using Alcoa cans. The defects consist of small areas of laminated metal that blister or spall off after canning. This condition has been called to the attention of the vendor, and a field inspector from the Purchasing Division has been assigned to the problem. Samples have been provided by the P Division to illustrate the imperfections in the cans.

On February 5, the two operating crews in canning were reorganized in such a manner that the slugs canned by one crew are finished by the same crew. This change has been instrumental in further improving operator interest in quality, and a marked decrease in marred surface rejects has been realized.

Inspection

A total of seven autoclave failures occurred during the month. Five of these failures resulted from small pinholes extending through the weld into unbonded areas between the cap and can sidewall. One failure was caused by penetration of the can sidewall. The cause for the remaining failure could not be definitely established.

No slugs tested for penetration during the month were found to be penetrated within 0.010" of outer can surface.

305

The following tests were run during February:

P Division

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Description	No. of Tests
Regular Canned Slugs	36
Billet Eggs	46
P-10-A Slugs (Lithium Aluminum Alloy)	114
Measure the absorption cross-section of uranium oxides	3
Measure the reactivity of uranium slugs with varying cap thickness	84
Measure the reactivity of 7 graphite bars	7
Measure the absorption cross-section of materials to be used in pile test	13
Measure the absorption cross-section of standard process tubing	7
Compare reactivity of Hanford and duPont slugs	13
Test the purity of Great Lakes graphite	12
Measure the absorption cross-section of heating element to be used in the 105 piles	4

Special Fabrication Work

Five hundred ninety-one poison slugs and six bismuth slugs were canned during the month. Approximately 3500 solid aluminum dummies were degreased for the 100 Areas.

In addition, 37 manhours were spent on the following fabrication requests:

Single Al-Si dip canning of 100 four inch solid aluminum dummies for corrosion tests.

Triple dip canning of 100 "squaw" slugs.

Material Handling

Eighty-three tons of normal canned slugs were shipped to the 100 Areas. In addition, approximately ten manhours were spent in shipping miscellaneous material off-plant.

P-10-A Operation

The fabrication of P-10-A slugs at Building 108-B was discontinued on February 6, 1951. Process materials were stored and the equipment has been placed in standby condition. The operating personnel was transferred to 300 Area operations on February 12.

Special Hazards

No unusual conditions developed during the month.

Development

A satisfactory method has been developed for charging and transferring Melt Plant crucibles from the weighing station into the

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furnaces. This method eliminates charging the crucibles in the furnaces and confines weighing and charging to one restricted area. Consequently, it is possible to exercise closer control of radiation and contamination hazards. In addition, it reduces metal handling and furnace downtime for charging.

The leaching of the backlog of bronze bath flux has been completed using the siphon type extractor which was developed recently. A total of 65 barrels of flux was leached in 15 days by this method, as compared to about 5 barrels per month using the previous process of dissolving the flux in a tank and allowing the salts to overflow to a drain.

A total of 2,000 canned slugs was treated with kerosene under vacuum in bubble testing equipment prior to welding. This was done to determine if kerosene would penetrate any existing unbonded areas around the caps and accentuate such areas during the welding operation. The results indicated that poorly bonded caps were more apparent during welding, but the number of rejects for poor bond was no greater than expected without such treatment.

Autoclave tests are being continued in an attempt to increase the effectiveness of normal procedures through thermal cycling, longer testing periods and higher steam pressures. Thus far, only one additional failure has occurred when slugs were tested for an additional forty hours under normal test conditions.

The following items are being investigated and studied for development:

Automatic stamping device for marking canned slugs.

Redesign of air bath trays to increase throughput for frost testing.

Solvent to replace carbon tetrachloride now used in the frost test spray operation.

Development of a welding inspection station using optical magnification.

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Richland, Washington
March 7, 1951

S DIVISION

FEBRUARY, 1951

I. RESPONSIBILITY

There were no changes in S Division responsibilities during February.

II. ACHIEVEMENT

A. Operating Experience

1. Production Statistics

a. Over-all Performance - Canyon, Concentration and Isolation Buildings (2-1-51 thru 2-28-51, inclusive)

	B Plant		T Plant		Combined	
	Normal	Acid Wash	Normal	Acid Wash	Normal	Acid Wash
Charges started in 221	61	1	61	1	122	2
Charges completed thru 224	61	1	60	1	121	2
Charges completed thru 231	61	1	58	1	119	2
Special Charges thru 231	-	-	-	-	3	
Avg. purity comptd. charges	-	-	-	-	98.2	
Avg. elapsed cooling time metal processed (days)	62		64		63	
Yield thru process	93.5		91.6		92.6	
Material Balance thru process	96.6		95.6		96.2	
Operating efficiency(%)	96		96		96	

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b. Canyon and Concentration Building Performance Data for Completed Charges (2-1-51 thru 2-28-51, inclusive)

	B Plant	T Plant	Combined
Percentage of starting product in waste:			
This month	3.4 (a)	3.3 (a)	3.4
Last month	3.3 (b)	3.7 (b)	3.4
Cumulative to date	3.9 (c)	3.8 (c)	3.8
Percentage of starting product recovered:			
This month	96.2	95.6	95.9
Last month	96.4	101.2	97.8
Cumulative to Date	96.8	95.7	96.3
Percentage of starting product accounted for:			
This month	99.6	98.9	99.3
Last month	99.7	104.9	101.2
Cumulative to date	100.7	99.5	100.1
Gamma decontamination factor (Log.)			
This month	7.14	7.08	7.11
Last month	7.11	7.35	7.20
Cumulative to date	7.30	7.33	7.32

(a), (b), and (c): Includes waste from processing recycle. The recycle wastes are estimated as: (a) 0.017%, B Plant; 0.017%, T Plant. (b) 0.022%, B Plant; 0.0002%, T Plant. (c) 0.011%, B Plant; 0.067%, T Plant.

c. Isolation Building Performance Data (2-1-51 thru 2-28-51, inclusive)

	Prepared for Shipment	Recycle	Waste	Retained Material Samples	Material Balance
Average for this month	90.8	6.20	-0.10	-0.09	96.9
Average for last month	93.15	4.98	-0.01	0.01	98.1
Average to date	95.13	4.88	0.04	0.011	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	3180	2196	10329*	0	0	0	1096	1096
1st Cycle	2645	3170	2645	552	9012	0	0	152	489	641
2nd Cycle	1431	0	0	0	1431	Cribbed as necessary				
TBP Reserve	-	-	-	-	-	-	-	-	109BY (758,000 gal)	
Waste Evap. Reserve	-	-	-	-	-	106B (530,000 gal)				

*Note: It is estimated that 22.9 tons of Uranium in 91,650 gallons of neutralized depleted uranium solution were lost to the ground.

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	3004	9320	0	0	868	868
1st Cycle	3170	1585	3466	8221	0	0	738	738
2nd Cycle	1448	0	0	1448	Cribbed as necessary			
TBP Reserve	-	-	-	-	-	-	115-TX (758,000 gal)	
Waste Evap. Reserve	-	-	-	-	-	-	116-TX (758,000 gal)	

2. Production Activities

a. General

Since there were no special materials handled through either of the Canyon and Concentration processes and both plants were processing material from uranium of essentially 400 MWD/Ton enrichment throughout the month, an over-all time cycle of 10.5 hours, counting standard charges and acid washes started in extraction, was maintained during February in both B and T Plants. No more than the usual difficulties were experienced with the process; however, in the waste storage tank farms at both plants plugging of an effluent line from a tank occurred. At T Plant the effluent line from the 202-T settling tank for Concentration Building wastes partially plugged, and periodic pumping of supernatant to another tank was required in order to discharge it normally to the underground crib.

b. Extraction

Significant data on extraction waste losses are tabulated below:

	B Plant February	B Plant January	T Plant February	T Plant January*
Analyses before rework	1.80	1.76	1.91	1.83
Analyses after rework (throw-away)	1.45	1.35	1.44	1.62
Average MWD/Ton	405	391	415	405

*Eighteen charges from 55 MWD/T metal.

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c. Acid Washes - B and T Plants

An acid wash was completed through one parallel line of the Canyon Building and through the Concentration Building at both B and T Plants with no abnormal recoveries being effected. The following data detail as percentages of standard charges the product recovery by the regular acid washes and Concentration Building pre-flushes:

Run	Extraction	Sect. 12 & 1st Cycle	2nd Cycle	221 Bldg.	224 Bldg.	Total thru Process	Preflush B E&F Cells
B-11-01-AW-1	6.19	15.48	12.09	33.76	11.94	45.70	22.71
T-11-02-AW-1	7.29	8.09	12.86	28.24	-1.91	26.33	27.30

d. Depleted Uranium Loss - B Plant

At the beginning of the month the depleted Uranium from B Plant extraction was being stored in the 103-BY underground storage tank after cascading through the 101-BX series and thence to the 101-BY series. On February 9 it was found that the level in the 103-BY tank was not rising, making it apparent that either a leak existed in the lines to the tank farms or that one of the cascade lines between the intervening tanks from 101-BX to 103-BY was plugged. Measurements of the levels existing in each tank of the two series were made, and it was found that the level in the 102-BX tank had risen above the normal cascade overflow point of 16 feet, indicating a plug in the effluent line. The level in the 102-BX tank was permitted to rise to 17 feet, one foot below the top of the steel inner shell in the hope that the head would break the plug, before the depleted uranium was diverted to another series of tanks. This was done on February 20. A few days after the diversion to another series of tanks was made, the level in the 102-BX tank was observed to be dropping slowly while the level in the succeeding tanks in the series and the 103-BY tanks remained essentially the same. A day later radiation determinations in the 150 feet deep dry well near the 102-BX tank were positive. By this time the level in the 102-BX tank had decreased approximately six inches. A special jet assembly was fabricated, installed in the 102-BX tank and the supernatant jetted to the 103-BX tank until the level in the former was 15 feet, 9 inches. Very close daily checks will be maintained of this level until it is certain that the leak is not in a region below the tank nozzles.

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A review of the tank inventories versus the amount of depleted uranium discharged to the 101-BX - 101-BY series tanks indicates that approximately 91,600 gallons of supernatant

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containing an estimated 22.5 tons of depleted uranium were lost to the soil in the vicinity of the 102-BX tank. Although the location of the leak point is not known, it now seems most likely that it was either at one or more of four spare nozzles on the tanks which are sealed with asphalt and a metal cap over the end of the nozzle or at the inlet nozzle, which is an asbestos packed joint. All five of the above nozzles were submerged when the level in the tank was at its highest point.

3. Process Control

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

A revised directive was received from the AEC to construct a fifth reactor filter assembly for possible replacement purposes. The procurement of materials for the fifth assembly is progressing satisfactorily.

New steam ejectors required for the four installations to increase the vacuum on the dissolvers have arrived; one unit will be modified to fit the present assembly, and tested before additional ejectors are installed.

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

The over-all construction phase of the project is proceeding satisfactorily with 74% completion at month end. Procurement of materials and equipment is essentially complete with early shipment dates promised on items not already delivered. The major equipment pieces were delivered to the job site late in the month and are being installed at month end.

The Project Proposal for the 200-E Area evaporator has been approved by the A & B Committee and submitted to the AEC for approval. Procurement of materials for this job, as authorized by Work Release ER#2554, dated 2-1-51, has been initiated.

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

All of the conductivity meter leak detection devices in 221-T and B Plants are in operating condition except for the one in Cell 7R in 221-T. This unit has been overhauled and is to be installed when operating time permits.

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

A directive authorizing construction of the 241-TY tank farm, (Project C-418) has been received from the AEC and the Design and Construction Divisions have been requested to instigate the necessary action required to facilitate construction of the tank farm in the 200 West Area.

The Project Proposal for the 200 East Tank Farm (C-417) has been approved by the A & B Committee and submitted to the AEC for approval.

The design phase of this project is proceeding satisfactorily, being 65% complete at month end.

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

The field release for Project C-415, has been issued for the A & J forces to make the necessary tie-ins in the tank farm areas for the disposal of 5-6 waste through settling tanks. This work will be done in conjunction with waste evaporator projects in both areas.

f. Budget Preparation

Job descriptions and reason sheets were prepared and submitted to the Project Engineering Divisions for estimation and inclusion in the construction budget for fiscal years 1952-53. Production forecasts for the budget periods were completed and are being compiled for use in calculating operating budgets for fiscal years 1952-53 to be submitted early in March.

g. Special Samples

A 1 gram sample of plutonium fluoride was taken from the 234-5 Building and shipped to the Oak Ridge National Laboratories.

4. Investigation and Development

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

Following the previous month's successful processing in the extraction precipitation step at B Plant with a bismuth ion concentration of 2.5 g/l, volume reductions through the process up to the metathesis step were made during February. A series of ten runs were processed at 90 percent of existing standard volumes (63 percent of original standard), followed

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by a series of normal volume runs. An additional nine batches were then processed at 80 percentof existing volumes before returning again to normal. Processing in each instance was successful with no deleterious effect on waste losses being noted. It is planned to evaluate still further volume reductions during the coming month.

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

Tests involving controlled air sparging of the metal solution in an effort to drive additional radio-iodine off into the silver reactor were continued during the month. Although the data for the runs sparged to date are still inconclusive, it has been noted that the maximum residual radio-iodine in runs subjected to sparging was definitely lower than the maximum remaining in runs not sparged. Evaluation is being continued.

B. Equipment Experience

1. Operating Continuity

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

2. Inspection, Maintenance and Replacements

a. Canyon Equipment Failures - B and T Plants

Equipment failures in the B and T Plant Canyons are summarized below:

1) In B Plant the Section 17 precipitator to centrifuge A jet assembly became inoperative due to plugging. Attempts to free the plug were unsuccessful, and the assembly was replaced. The removed assembly was stored for subsequent repair.

2) In B Plant the Section 13 precipitator sparger dip leg plugged, and did not respond to efforts to unplug. High radiation levels precluding repairs, the assembly was removed and replaced with a new assembly.

3) In B Plant after all attempts failed to remove a plug from the dip leg for the Section 13 cake dissolution tank sampler, the assembly was replaced.

4) In B Plant the Section 14-L space microphone assembly failed and was replaced.

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5) In B Plant the electrical contact shoe supplying the motor and solenoid brake for the 10 Ton hoist of the 75 Ton crane broke off at a time when the crane was over an open, partially charged dissolver, and with a full bucket of uranium slugs suspended on the 10 Ton hook. Despite the work time limitations imposed by high radiation levels, temporary repairs were rapidly and safely effected on the crane bridge, permitting emptying of the bucket and closing of the cell. The defective shoe was then replaced with one of an improved design which includes a back-up shoe. All crane shoes are to be so replaced as down time permits.

6) In T Plant the extraction centrifuge in Section 7 failed to start during the processing of a run. A check of the electrical circuits disclosed that the motor was single phasing as a result of an open circuit, apparently in the winding. Trial using an alternate power supply connector failing to start the motor, the machine was removed and replaced with a previously overhauled centrifuge assembly. During this change four connectors were also replaced because of faulty fit or defective gaskets in the old connectors.

   The removed centrifuge had been in continuous service for 27 months. Prior to this failure one skimmer had become inoperable, a leak had developed in the bowl spray line outside the case, and failure of the internal thermal guard had necessitated provision of an external unit. The machine has been stored pending subsequent disposal; radiation levels precluding repair.

7) In T Plant a leak developed in the gasketed wall connector of the Section 8 centrifuge catch tank to precipitator jet assembly, requiring replacement of the assembly with a spare.

8) In T Plant a similar wall connector gasket failure on the Section 16 centrifuge to cake dissolution tank transfer jet assembly necessitated replacement of the assembly.

b. Concentration Building Mechanical Difficulties - B and T Plants

1) In T Plant the F-2 centrifuge became inoperable on two occasions during the month when one of the control circuit fuses failed. Investigation has thus far failed to disclose the contributing cause.

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2) Considerable difficulty was experienced at 224-T Building in removing the product bearing cakes from the B Cell centrifuge. Subsequent investigation disclosed one of the bowl spray nozzles to be plugged. The spray assembly was replaced with a spare, and operations returned to normal. The plugging medium appeared to be stainless steel turnings. An examination of the bowl spray measuring tank, connecting lines, and strainers did not disclose any additional material.

c. Coil Failure, Sodium Hydroxide Storage Tank

A routine analysis of the sodium hydroxide storage tank heating coil steam condensate indicated the presence of 9.5 percent sodium hydroxide in the condensate from Tank SQ-143 in T Plant. The tank was emptied, flushed and inspected. These coils are of Schedule 160 black iron, but a small rupture was located in the steam inlet side of the coil. The corroded sections were replaced; and since it was noted that nearly all corrosion lay toward the steam inlet end of the coil, it was decided to reverse the steam inlet and outlet connections of those tank coils which have been in service for an appreciable time.

d. Waste Sump Crib Manometers - Isolation Building

Investigation of the reason for erratic Isolation Building waste sump crib manometer readings indicated the sump sludge level had reached the end of the manometer lines. The lines were removed and shortened in order to provide reliable measurements. It was also decided that since difficulty has been experienced on obtaining accurate manometer readings during cold weather periods, electrode readings would also be taken.

C. Improvements

1. Adoptions

a. Volume Reduction and Bismuth Concentration

On the basis of results thus far obtained in accordance with Production Test 221-B-10 a 63 percent volume (90 percent of immediately preceding standard) has been adopted as standard in the extraction sections. This, also, effects volume reductions of 8 to 10% in subsequent steps up to metathesis. The bismuth ion concentration has also been reduced from 4.5 g/l to 2.5 g/l on the basis of this test. Since this latter reduction is satisfactory when extraction wastes are reworked but may have the effect of increasing these wastes prior to rework, it is possible that an increased bismuth ion

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concentration may be desirable at such time as the urgency for further reducing time cycles requires abandonment of reworking.

2. Inventions and Discoveries

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

III. PERSONNEL EXPERIENCE

A. Organization Changes

L. M. Meeker was promoted to Area Supervisor of the 234-5 facility, February 1.

G. P. Coryell, D. E. Braden, D. E. Bloomfield, K. A. Clark, W. O. Clark, R. W. Knostman, and R. A. Kennedy were promoted from Supervisors-in-Training to Shift Supervisors, February 1.

T. B. Griffith, B. F. Campbell, W. G. Browne and E. G. Pierick were promoted from Shift Supervisors to Senior Supervisors, February 1.

B. Force Changes

1. Number of Employees on Payroll

	Monthly Roll	Weekly Roll	Total Employees
Beginning of month	136	459	595
End of month	146	459	605
Net Increase (Decrease)	+10	0	+10

2. Personnel Changes

	Monthly Roll	Weekly Roll	Total Changes
Transfers from Another Div.	0	14	14
Transfer to another Div.	0	-5	-5
Reactivated	0	0	0
New Hires	0	7	7
Resigned	0	-3	-3
Transferred from Weekly to Monthly	10	-10	0
Dropped from Roll - Illness		-3	-3
	10	0	10

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C. Safety Experience

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

D. Radiation Protection

1. Exposure of Personnel during Dissolver Charging

Through an inadvertency four men remained working at Section 11 in the B Plant Canyon during the charging of two buckets of uranium slugs into the 3-5R dissolver. Their film badges were processed and showed zero readings; their pencil meters indicated only one-fifth the daily tolerance. A subsequent survey under identical charging conditions indicated a maximum exposure of 35mr/hour for two thirty-second periods.

A special investigation of the incident has been completed and recommendations for avoiding a recurrence are being published and will be adopted.

2. Wedged Slug Bucket, Cask Car

While completing charging of a dissolver in T Plant both hooks of the special yoke were not engaged when the last bucket was being removed from the cask car well. When the trunnion which was hooked failed, the bucket became wedged at an angle in the cask. The trunnion guide having been dislocated, there was no means of handling the bucket remotely. A special clamp was fabricated and, using the small but sufficient time limit afforded by utilizing a full well of water as a shield, installed over the side of the bucket to replace the damaged trunnion guide. The crane operator was then able to free the bucket and right it in the cask.

The car and contents were returned to the 200 North Area where the material was transferred under water to another bucket for return to process. The damaged bucket was removed from service.

During this entire incident there were no abnormal exposures to personnel.

IV. EXPANSION SECTION

A. TBP Project

1. General

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

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1) Seventy-four percent of the detail design had been completed as compared to a scheduled 71% completion.

2) Ninety-six percent of the required requisitions have been received and approved for all phases of the TBP project, and 87% of those received are covered by purchase orders. As a general rule promised delivery dates are running 2 to 3 months behind the required date, most of this delay is being caused by delays in material deliveries to the equipment fabricators.

3) Construction is progressing rapidly with 11.8% completion as compared to a scheduled 10.9% completion to date.

b. Procurement

Procurement problems were acutely accentuated during the month when several heats of stainless steel plate and pipe previously earmarked for process vessel fabrication failed to pass corrosion tests. The failure occurred on stainless steel plate produced by Allegheny Ludlum and stainless steel tubing produced by Columbia Steel. All the steel passed the chemical specification tests but failed the corrosion tests by factors ranging up to 15 times maximum.

Present indications are that future stainless steel production may result in similar failures of unknown quantity. Since it appears imperative to utilize this inferior stainless steel in order to meet the scheduled completion date of the project, the problem has been thoroughly reviewed with representatives of all interested Divisions. By corrosion rate relaxation on some of the replaceable units, which normally handle neutral or slightly corrosive solutions, the inferior stainless steel may be utilized without seriously affecting the procurement schedules. A more drastic but time saving solution which is presently under consideration is to utilize the inferior stainless steel for all replaceable pieces of equipment, and procure as soon as possible additional spare units for future replacements. At month end each separate vessel is being given consideration before approval of the use of sub-standard material is granted.

c. Construction Procedure for SWP Work

A procedure proposed for construction activities requiring SWP coverage on Project C-361 and C-362 was drawn up by the "S" Division and submitted to the Design and Construction Divisions for comment. The proposal is a method for coordinating the activities requiring SWP coverage of the G.E. Construction Division with the "S" Division operating groups during the construction phases of Projects C-361 and C-362.

d. Welding Specifications for the TBP Project

As a clarification of specifications concerning welding of stainless steel for the TBP process, the construction forces have been notified of the following requirements:

1) Inert gas welding shall be used for the following:

221 U Building

All stainless steel pipe in the 221-U canyon and pipe trench. All pipe in the pipe and operating galleries leading into the canyon vessels which is down stream from weigh tanks. Lines leading into canyon vessels which do not go through a weigh tank shall be inert gas welded down stream from line filters.

241 WR Vault

All stainless steel lines in concrete encasement, and associated diversion boxes.

2) Although the inert gas welding of stainless steel is always preferred over coated rod arc, it is permissable to arc weld with coated rod, any pipe not specified above for inert gas welding. It will not be necessary to pickle this pipe after welding.

2. Essential Materials

The over-all chemical procurement picture appears to offer no serious difficulties as all essential materials required seem to be in good supply. The corrosion difficulties mentioned earlier in this report are expected to delay construction of the first nitric acid storage tanks in 211 AU approximately one month. It is expected that the Du Pont Company will be able to supply six cars of HNO_3 monthly beginning July 1st to be used for inventory build up. If additional nitric acid is needed prior to the time that General Chemical goes into operation, estimated to be from 12-1-50 to 1-1-51, it will be purchased from other sources.

3. Design

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

1) Sampler Modification

In order to assure positively the operation of the Hanford type sampler for service in the large blend tanks and

diversion vault storage tanks, the Kellex Corporation is modifying the existing unit. In the metal removal facilities it will be necessary to sample solutions from tanks having liquid heads which will vary from 1 to 20 feet. The existing samplers with the atmospheric air bleed above the liquid level may be inadequate under these conditions. Kellex proposes to introduce process air to this air bleed line under controlled pressure, at a point near the tank bottom, regulating the flow of air through an orifice. In order to assure that excess air pressure will not be introduced through this bleed line, an additional dip tube will be added to the assembly which will control the air pressure bleeding into the sampler to the equivalent of 1 inch of process solution.

2) 111 and 112 BY Tanks

Revision request 362-24 was approved and transmitted to Kellex during the month. This revision covers the request for waste removal facilities to be installed on waste tanks 111 and 112 in BY Area. These tanks were not covered under the original scope of the job originally forwarded to Kellex; however, increased production rates will necessitate the use of these tanks for metal waste storage. The Kellex Corporation has acknowledged receipt of the revision request and will proceed immediately on design for these installations. Increased cost estimates will be prepared, as this phase was not covered by the original contract, and forwarded to G.E. at an early date.

3) Blend Tank Process Control

Previously accepted methods for acidifying sludge removed from the waste tanks are controlled by use of specific gravity and weight instrumentation in the accumulator and pH indicators in the blend tanks at the 244 process vaults. Revision Request C-362-25 was approved this month calling for the addition of turbidimeters in the sample recirculation line of each blend tank as an auxiliary method of control. The use of the turbidimeter takes advantage of a characteristic of the solution wherein a turbid condition appears at a known acid and sludge concentration. These turbidimeters will be installed on the blend tanks of each waste removal unit.

In addition the strain gauges, which record tank content weights, originally provided on the blend tanks have

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been deleted since these tanks will handle true solutions and accurate weights can be determined by means of weight factor and specific gravity instrumentation. A savings of $60,000 will be realized on the elimination of these gauges.

b. Phase III - Design of Underground Pipelines

1) Encasement Sealing

In an endeavor to eliminate the possibility of ground water seepage into the pipe encasements, which has been a source of some trouble in the past, a new plan of encasement cover slab sealing has been adopted. Cover slabs will be sealed to encasement sides with Amercoat #16 and covers calked with gun elastic material. Joints between slabs will be filled with fibrous expansion joint filler and hot sealed. A water proof membrane will cover the entire top of the encasement and extend to within 6" of the bottom of the encasement on the sides.

2) Encasement Cover Slabs

The "S" Division field contact group detected several cover slabs installed in the first portion of the E-W pipe line encasement which were warped in the lengthwise direction such that openings up to an inch in size existed between the cover slabs and the side walls of the encasement prior to the installation of the weather proof coatings. This condition was called to the attention of the D&C field group, and steps were taken to prevent a recurrence.

c. Phase IV - Reactivation and Conversion of 221-U for TBP

1) B-4 and D-4 Fractionation Towers 224-U

The B-4 and D-4 fractionation towers were redesigned during the month to alleviate a procurement bottle neck which threatened to delay delivery of this critical item for several months. This redesign was made possible by a re-evaluation of the allowable cribbable condensate values for uranium and plutonium. The newly designed tower will have a maximum diameter of 8'6" as compared to a diameter of 12' on the old design which will greatly reduce fabrication and shipping problems.

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2) Johnston Prototype Pump

One phase of the test runs on the Johnston multi-stage centrifigal prototype pump has been completed. Upon examination, the submerged bearings which are lubricated with process solutions and which had pressure relief holes showed erosion beyond the hole in the direction of rotation. The bearings, similarly lubricated, but without relief holes showed no wear. The vendor will be informed accordingly and no relief holes in the bearings will be provided.

The first two canyon production pumps to be delivered will undergo a life test with simulated neutralized TBP waste. The erosion rate for the graphitor bearing material is of particular interest. It is estimated that this test will be started the latter part of March.

3) Access Walkways for 203-U and 211-AU Tanks

Due to difficulties in meeting required construction scheduling for sub-contracted tanks, the request for walkways over the Nitric Acid and Caustic Storage tanks was withdrawn by the Manufacturing Divisions. The original design providing a ladder access to each individual tank will be augmented by a request for a small platform to be provided at the top of each tank ladder to comply with Hanford Safety Bulletin C-2. A different situation is presented, however, at 203-U, due to the need for access to valves near the tank top and the necessity for taking accountability samples at the tank top on a daily basis. A request has been forwarded to Kellex to provide a stairway in place of the ladder access originally planned.

4) Gallery Piping

A Design Division representative visited Kellex in New York this month to discuss operating gallery piping design.

Particular emphasis was placed on piping behind panel boards to insure access to all equipment for repairs, since original design prints indicated some congestion of equipment existed.

The principal points discussed are as follows:

a) All piping in back of panel boards will be rearranged to provide access to this area. Similarly congested

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piping around the air-operated gang valves will be relocated to give repair access to these units.

b) Instrument transmitters will be located on the operating gallery wall at a distance of 18" from the nearest pipe. This will allow repairs to be made.

5) Pulse Generator Prototype

Initial run in tests on the prototype pulse generator will be initiated around March 1 at the Proportioneers Company plant. Inspections of the assembled unit have indicated excellent workmanship in finished parts. Final tests are expected to be conducted on this unit before March 15. The order for the five production units has been placed with the Sterns-Rogers Company due to the fact that Proportioneers could not promise delivery of these units until the latter part of 1951. The sterns-Rogers bid was also lower. A performance test on one of the units fabricated by Sterns-Rogers similar to the test made on the prototype unit has been requested.

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

1) The design of Phase VI is estimated to be 74% completed. Drawings have been received from the Roberts Filter Company and are currently being studied. All main steam and water header drawings relative to Phase VI have been approved by the Manufacturing Divisions.

B. UO_3 Project

1. UO_3 Project Status at month end is as follows:

a. Detail design is 96.7% complete as compared to a scheduled 100% completion. Delay is due to continued search for the most economical and effective alterations to the general building ventilation.

b. Construction is estimated to be 1.8% completed to date.

c. All purchase requisitions have been issued and all have been covered by purchase orders except those required for Ventilation revisions mentioned above. Procurement appears to be on schedule.

d. The project proposal will be revised upon receipt of the work authority to add facilities for the segregation of the Redox and TBP UNH solutions. A recent cost review indicates that the project funds are adequate for the completion of the job, not including the proposed segregation costs.

2. Segregation of Feeds

Document HDC 2037 was received and is currently being studied. This document gives the results of feasibility studies conducted by the Design Division in regard to segregation of Redox and TBP feed through the UO_3 conversion plant. In essence the methods outlined appear workable providing precise scheduling can be maintained. The Manufacturing Divisions are not wholly in accord with some of the suggested procedures, and pertinent comments are being forwarded. It appears that an additional expenditure of about $150,000 will be required for these facilities. The AEC is being informed of the study and estimated cost, and it is assured that design and construction work on this additional facility will proceed as soon as the AEC so directs.

3. Fabrication of Decomposition Pots

The Electric Steel Foundry Company of Portland cast the first two decomposition pots during the month. These pots have been completely x-rayed and studied by metallurgists from G.E. and the vendor. A marked difference of opinion has resulted from these radiographical studies as to the quality of the castings. These two pots have been machined and are being retested. Re-examination will be made at an early date. Meanwhile work is starting on plate fabrication of at least a portion of the pots in order to assure delivery of these units by the required date.

C. Construction

1. Month end summary

Project C-362

Phase	Weight %	% Completion
I	12.34	20.0
II	31.49	1.0
III	11.93	45.0
IV	35.00	4.0
V	4.03	100.0
VI	5.21	0.5
Composite	100.00	13.5

Project C-361

Facility	Weight %	% Completion
2714 Warehouse	2.0	20.0
224 Bldg.	96.6	1.5
216-U Waste Cribs	1.4	25.0
Composite	100.0	2.0

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2. Project C-362

Phase I - Process tank vault 241-WR is estimated to be 20% completed. Concrete base slabs for tanks 006, 007, 008 and 009 have been poured and forms for second elevation pour for tanks 001, 003, and 005 are completed.

152-UR Diversion Box and 101 Metal Waste Tank Cascade is 22% complete. Heel jet riser holes have been drilled in the top of tanks 101 and 102-U. Tanks and sluice pits for tanks 101, 102 and 103-U have been poured.

153-UR Diversion Box and 104 Metal Waste Tank Cascade is 9.5% complete.

154-UR Diversion Box and 107 Metal Waste Tank Cascade is 5.6% complete.

Phase II

a. 241 TXR Facilities

Excavation for the 107 and 108 TX tank facilities has been completed.

b. 241 CR Tank Farm Facilities

152 CR Diversion box is 4.5% completed.

153 CR Diversion box is 4.0% completed.

Excavation for the 244 CR Blend Vault is virtually completed.

Phase III

a. Ten thousand five hundred sixty feet of 6 line encasement and 6,300 feet of 3 line encasement has been poured to date. This completes the concrete work for the three line encasement. Two thousand feet of the 6 line and 4,500 feet of the 3 line encasement have been Amercoated. Thirty-five hundred feet of 3 line piping have been installed.

b. 216 WR Crib

Seventy-five percent of the back fill around the 216 waste cribs has been completed.

Phase IV

a. Excavation has been completed and 30% of the concrete footings, and foundations for the 291 sand filter has been poured.

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b. Cell painting is proceeding in the canyon with Cells 1, 2, and 10 completed to date.

Phase V

This work is 100% complete, and the cost account is being closed.

Phase VI

The base slab for the 282W Building raw water pump has been poured and the pump installation started.

3. Project C-361

a. 2714-W Warehouse

The concrete work is 65% complete. Steel fabrication is essentially complete.

b. 216-U Waste Cribs

The excavation has been completed and both test wells have been drilled.

c. 224-U Building

The concrete removal from E and F Cells is 85% complete.

D. Redox (Project C-187-D)

1. General

a. There have been a number of instances during the past month of failure of stainless steel heats to meet corrosion test specifications. In every instance it has been possible to utilize the off-standard material for vessel fabrication with reasonable certainty of acceptable performance, because of the relatively mild corrosion conditions encountered in the specific process locations in question. The most critical corrosion test failure to date involved the heat of Type 309 sCb stainless steel intended for (among other things) the steam coils of TK-109 (Oxidizer) and TX-160 (Waste Concentrator Pot). Consideration of the factors involved has led to the substitution of Type 347 coils in the two locations noted. The operational spares for these tanks will, however, be supplied with Type 309 sCb coils as originally designed.

b. A second instance of failure to meet fabrication tolerance has been encountered in the placement of the 6" nozzle for Tank T-110 (Oxidizer). The nozzle as placed by the fabricator

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was 1/32" out of tolerance. This has been accepted by the Design Division. A deviation of 1/8" maximum in nozzle location (1 CU Concentrator Pot) was previously accepted (see last month's report).

c. In order to expedite the fabrication of T-156 (Organic Still), it has been decided to use the 5" radius reverse dished head intended for the "operational spare" condensate evaporator rather than delay fabrication for the procurement of a 7" radius reversed dish head as called for on the T-156 design. This alteration is expected to give no trouble in mock-up work or in subsequent plant operation.

d. Engineering flow diagrams, instrument flow diagrams, cell lay-out details, and vessel details for the off-gas silver reactors were approved during the past month, and the Purchasing Division is currently carrying out negotiations for the fabrication of four such units for the Redox Plant. Until the contract for the fabrication has been let, there will be no indication as to whether the units will be available in time for installation in the plant prior to cold runs.

e. The Separations Technology Division has added chromium nitrate to the list of essential materials required for the Redox Plant. This material, in the amount of approximately 100 lbs. per ton of metal processed, will be required in the metal feed preparation step of the Redox process. Investigations are currently being carried out to determine available sources of supply and prices for the material.

f. A meeting was held during the past month between representatives of interested Design, Operating, and Construction groups to determine what modifications would be acceptable in the welding specification to permit better utilization of the welding manpower available. The following agreements were reached during this meeting.

1) There will be no change from the use of the standard inert gas welding procedure for P-90 piping. (Tunnel piping, pipe-through-concrete, cell jumpers, etc.)

2) Shielded arc welding or conventional metallic arc welding may be used on P-91 piping which is up-stream from the various process strainers in the chemical system. No pipe pickling will be required under these conditions.

3) If desired a chill ring may be substituted for the inert gas purge on the inside of P-91 piping.

4) Either lime-coated or titania-coated rod may be used in the metallic arc welding of the P-91 pipe.

It is expected that the above modifications will materially aid in the erection of cold chemical piping.

g. An order was placed during the past month for larger size (1" and 3/4") raschig rings for use in reactor packing. The placement of this order is the first concrete step taken to equip the plant for production rates above those used as the design basis for the plant. The exact delivery date of the rings is not yet firm but is estimated at 6-1-51 to 6-15-51.

h. At the request of the Manufacturing Divisions, an operating test was made in the 277-S Building of the dowel pin and guide arrangement designed as the cell vessel locating device in the Redox Plant. This test consisted of removal and placement (several cycles) of a 10' x 10' tank by simulated remote means. In general the test proved that the system as proposed is operable and that no damage to the guide pins or binding of the tank may be expected in normal handling procedures. The test also indicated that it would be desirable but not essential to have the shorter of the two dowel pins shortened to assure non-interference with the tank foot; however, this change will not be made because of the magnitude of the work involved in shortening the hardened stainless steel pins.

i. A meeting was held during the past month between representatives of the Kellex Corporation, the A&J Company, the AEC, the Design Divisions, and the S Division for the purpose of discussing the procedures to be used in the mock-up of the process equipment for the 202-S Building. Of major interest to the S Division was the agreement that it will be necessary to demonstrate in the 202-S Building that remote operation of all equipment is possible. Further, it was agreed that this remote operating test will not take place until all equipment for a given operating unit is in place in the cell. Agreement also was reached on the general procedure which will be initiated to assure cleanliness in the canyon and in the cell equipment after installation.

2. Construction

a. 202-S Building

1) Building Structure estimated to be 88% completed at month end. All upper U frames in the silo have been set and work is in progress extending U frame piping to the silo

operating gallery level. Concrete pours are in progress in those portions of the silo operating gallery where in-concrete process piping is not a delaying factor. Concrete floors have been poured in the service portion of the building and the installation of concrete block partitions is now in progress. Concrete work is also in progress on the hot pipe tunnel cap in the canyon portion of the building. Cell painting has been started and is moving rapidly.

2) Building piping is estimated to be 40% complete. Piping work progressed satisfactorily in the galleries and in the aqueous make-up region. Work in the hot pipe tunnel expanded rapidly during the month with approximately one-half of the piping now installed. The raw and sanitary water loops and the main steam loop for the building have been extended around the silo portion of the building, and the installation of utility supply headers in the pipe galleries is progressing rapidly.

3) Process equipment installation is estimated to be 34% complete for cell equipment and 14% complete for other equipment. The installation of Y pads has been completed in "A" cell and is in progress in Cells "B", "F" and "J". The installation of floor liner back-up strips is in progress in "F" Cell and approximately one-half of the finished floor has been poured in the lower level of "E" cell. Virtually all Class 2 vessels for the aqueous make-up regions have been shipped or were on site at the end of the month, and almost all vessels which have been received have now been installed in the building.

4) Building Instrumentation is estimated to be 21% complete. The installation of panel boards continued in the building. These boards are essentially complete as installed since a great deal of prefabrication work is done in the instrument shop on the boards prior to their removal to 202-S. The installation of scales continues in the aqueous make-up portion of the building.

5) Building heating and ventilating is estimated to be 22% complete. Work continued during the month on the installation of major blower equipment in the No. 1 and No. 2 blower rooms.

6) Building electrical work is estimated to be 55% complete. A number of lighting transformers and circuits were tested and accepted during the month. Motor control centers have been placed in both operating galleries and

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the wiring of the control centers in the aqueous make-up portion of the building is in progress. Appreciable progress has been made in the installation of the large transformer in the North and South substations. The stringing of the emergency power cables from the U Area substation to the S Area has been started.

7) Over-all building completion is estimated at 56%. As previously expected, any major delay in building completion will likely be caused by delay in the arrival of cell vessels. As of February 20, 34 major equipment items required for the cells had been delivered or shipped. This represents approximately 42% of the 78 major equipment pieces required. It is expected that 29 additional equipment pieces will be completed for shipment during March, and the remaining 15 will be completed during April. Present indications are that a number of vessels involved in the late shipments may not meet the tolerance dimensions indicated on the drawings and work is currently underway to establish the absolute dimensional limitations which can be considered acceptable under the present critical procurement situation. Canyon minor equipment pieces such as agitators, pumps, jets, and control valves were received in small quantities during the month. Complete delivery of these items is expected during March.

b. The 291-S Building is estimated to be 67% complete. Additional G layer sand was obtained and placed in the sand filter during the past month and approximately two additional carloads of this material are yet to be received. Structural work on the jet control house is virtually completed and piping work, both process and utility, is in progress. Additional concrete work around the fan foundation is underway.

c. 211 Chemical storage is estimated to be 16% completed. Concrete pads for all tanks are now complete and fabrication of the mild steel tanks is now underway by the sub-contractor, Chicago Bridge and Iron Company.

d. 276-S Organic treatment building is estimated to be 26% complete. Work on this building during the past month has been confined to building structure. The underground organic storage tanks have been placed in position and the waterproof coating, which was damaged during tank shipment, has been repaired.

e. Building 2726-S propane storage is estimated to be 31% complete. Inlet and outlet piping to the tanks has been

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installed and the steel work for the sun shade over the tanks is being erected. The Wiggins inert gas holder was erected and tested for leaks at White Bluffs. The final test of this unit will be made after installation at the 202-S Building.

f. Percentage completion of the remainder of outside facilities is estimated as follows:

2702-S Gate House	100%
Sanitary & Process Sewers	78%
Steam Distribution	78%
Water Distribution	81%

2901-S high tank welding is essentially completed and a hydrostatic test of the tank will be carried out shortly.

g. 241-S Tank Farm and associated waste facilities (F. J. Early contract)

Construction work on the 241-S Tank Farm and associated facilities is approximately 47% complete versus 60% scheduled. All steel tank liners have been erected and water-proof membrane installation is in various stages of completion on Tanks 101, 108, 110 and 112. Welding and x-ray work is in progress on Tanks 102, 103, 105, 106, 109 and 112 and reinforcing steel has been completed for the walls for Tanks 104 and 107. The initial concrete pour has been made in the walls of the 104 Tank.

Concrete pours for the floor of the retention basin, Building 207-S, have been delayed because of inclement weather. Concrete pouring on the 241-S diversion box is continuing following the installation of the inlet nozzles to the box.

h. 240-S waste lines are estimated to be 45% complete. Structural work on the 240-S diversion box is in progress and the outlet nozzles for the box are being placed.

i. 277-S Mock-up Building and Hanley Pipe Shop. A total of 440 jumpers have been fabricated and tested to date in the pipe shop. Pending a better understanding of the procedures to be followed in mocking up cell equipment, acceptance of jumpers has been handled on an individual basis. The total jumpers balanced, tested, and accepted now stands at 27. Six electrical impact wrenches were received during the past month and one is currently being used in the 277-S mock-up activity. It has been determined that the wrenches operate satisfactorily on pipe connectors; however, because of the relatively high speed, the wrenches tend to gall the threads of the vessel hold-down studs. Plans are now underway to

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correct this difficulty by slowing the wrench operating speed. A few pumps and agitators have been received in the building and mock-up work on one pump has been completed to date. No run-in of rotating equipment has yet been started.

E. Training and Procedures

1. Training

a. Training Lectures

The third cycle of Training Lectures will end on March 14. The fourth and last cycle will end on April 25, 1951.

b. Redox-TBP Training School - 321 Bldg.

Twenty-four (24) S Division Chemical Process Operators with previous 321 Building experience, and eight (8) S Division Shift Supervisors reported to the Redox-TBP Training School on February 5, 1951. This group of people are on loan to the Chemical Development Section to assist in the training program. The Demonstration Unit equipment is now arranged to simulate the first cycle column battery of the Redox extraction process and the Scale-up Unit equipment is connected to simulate a TBP pulse column extraction battery. After a period of retraining to familiarize personnel with training procedures and the new equipment arrangements actual operation of the processes was begun.

On February 19, 1951 the first six weeks training cycle began when twelve (12) S Division Supervisors and Supervisors-in-Training and twenty-eight (28) Chemical Process Operators reported to the 321 Building.

2. Procedures

a. Redox

Considerable progress has been made in the writing of detailed flushing and testing procedures, and in the writing of calibration procedures.

A member of the procedure writing group is currently at the California plant of a vendor of Hexone, for the purpose of gathering first hand knowledge of operating and maintenance techniques and experience with respect to this solvent.

b. TBP-UO_3

The Special Hazards Sections of the Manual of Standard

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Practice for 221-U and 224-U Buildings have been prepared and submitted for comment.

A procedure for unloading HNO_3 from tank trucks was prepared and submitted to the Redox Procedure Group for standardization and further submission to the vendor via the Purchasing Division.

Corrections and revisions were made to the Essential Materials Section of 221-U Manual of Standard Practice as a result of the comments made on the original draft.

Work was started on operating Forms, Records and Reports and Job Hazard Breakdowns for the 221-U and 224-U Buildings.

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INSTRUMENT DIVISION

MONTHLY REPORT

FEBRUARY, 1951

GENERAL

The maintenance forces of the division worked 48-hour weeks through the month as was necessary to meet current work loads. Only 65% of the anticipated overtime was necessary to accomplish this due to a light work load in the 300 and 700 Areas. The total force increased by six through new hires and transfers.

Construction of the new Instrument Maintenance and Development Shop, Building 3717-B, has progressed normally, being approximately 80% complete. Final completion has been estimated as April 1, 1951.

100 AREAS (Reference: HW-20473)

100-B Area

The L & N power level recorder was modified to increase the range to present operating levels.

Leak detection on P-10 work in Building 108-B was at a minimum level during the month. One mass spectrometer leak detector was released to the 200 Areas. Acceptance testing and final adjustment of equipment on the Metal Line is in the final stages of completion.

100-D Area

Number 24 vertical safety rod thimble and associated thermocouples were installed during the shutdown of February 14 and 15.

The L & N power level recorder range was increased to accommodate higher operating levels.

100-DR Area

Range resistors were replaced in the Bailey power calculator system to increase the differential temperature range consistent with new operating levels.

Volumetric flow rate tests were run on the 105 building process water flow meters. An error of 2% was discovered, which is within the expected accuracy of this equipment. A study is under way to determine proper corrective action.

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100-H Area

Three thermocouple wells on process tubes developed leaks during the month and were replaced. The cause of these failures is under investigation.

Process water pressure was increased 5 psi. on February 27, necessitating resetting of over-pressure regulators.

100-F Area

One process tube thermocouple well developed a leak and was replaced with a spare.

Thermocouples have now been installed in ten of the vertical safety rod thimbles. Additional lead wire is needed to extend the thermocouples to the recorders.

Shutdown Experience

100-B Area - None due to instrument failure.

100-D Area - None due to instrument failure.

100-DR Area - Scrammed at 12:13 P.M. February 3, due to alarm on water pressure monitor. Pressures were normal but circuit would not reset until a relay was replaced. No defects could be found in the relay. Unit returned to nominal power at 1:03 P.M.

100-H Area - Manually shut down at 2:27 P.M. February 2, due to high activity indication on water monitor. Pressure and temperature indications were normal. A ruptured slug was located in process tube No. 2562. After start-up the unit scrammed at 3:31 A.M., February 3 due to P-13 equipment alarm. All records indicated normal operation and the unit was returned to full power at 4:16 A.M. Scram occurred at 4:02 A.M. February 14 due to power failure; no instrument equipment involved. Scrammed again at 8:00 P.M. on February 24, due to Beckman controller exceeding trip point. Investigation showed trip point to be set close enough to operating point to be tripped by normal instrument fluctuation. Unit immediately returned to normal power.

100-F Area - None due to instrument failure.

200 AREAS (Reference: HW-20474)

T & B Plant Production Instruments

A Ring Balance dual differential instrument no longer required for process on section 10-3 in building 221-B was converted to record the pressure differential between the canyon and operating gallery. An alarm was attached so visual observation of conditions is no longer necessary.

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Project C-337 and C-378 - Silver Iodide Reactor & Off-Gas Filter

The fourth and final unit was installed in section 3-5R, building 221-B. Instrumentation on this project is now complete.

Z Plant Production Instruments

Rotameters with fluorothene tubes and floats on test on the Hood 8 HF system, building 234-5, were examined for performance. The accuracy has not changed during 60 days of operation, there has been no accumulation of foreign matter and corrosion of exposed metal parts was insignificant.

Three additional new beta-gamma clothing monitors were put in service in the new laundry. This brings the total of these instruments up to six in operation as compared to two in the old laundry. New poppy alpha monitors have not yet been received.

300 AREA (Reference: HW-20475)

MANUFACTURING SECTION

Project C-330 - Air Samplers

Four prototypes air sampler probes were fabricated for the H. I. Development Group.

Project C-399 - Toepler Pump Controls

Twenty-four of the thirty units have been delivered. The balance are awaiting receipt of cable connectors.

OPTICAL SECTION

The tank periscope for waste tank inspection has been redesigned to D&C Division specifications. Changes were necessary in the scanning mechanism and associated prism. Two trial models of the prism were made to test the design.

DEVELOPMENT SECTION

P-11 Project

Review of instrument requirements for Phase III of this project indicates that modification of installed equipment will provide the major portion of instrument needs.

Process Tube Temperature Mapping Display

Major components of this equipment have been tested individually in the laboratory. A composite test is planned for the near future to evaluate over-all performance characteristics.

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Beckman Automatic Range Changer

A developmental model of an automatic range changer for a Beckman micro-microammeter. Satisfactory operation was indicated and design requirements for a production model have been established.

DESIGN & CONSTRUCTION GROUP - 760 BUILDING

Project C-300 (100-G Area)

The program being initiated for the 105-C reactor has caused curtailment and stoppage of many of the test projects. Most new work will consist of evaluation of instrument items which will lend themselves to short term evaluation and where present instrumentation is inadequate for the new reactor program.

Project C-431 (105-C Reactor)

Work has started on design criteria and scope. It is intended to follow basic instrumentation principles now in use in 105-H.

Project C-187 (Redox)

Purchase requisitions covering instrumentation for use with the silver iodide reactor installation have been issued. Field work has been stopped on the installation of instrumentation for the three dissolver scrubbers being replaced by the silver iodide reactor.

Project C-362 (TBP Process and Facilities)

As delivery of electro-magnetic strain gauges for use on the slurry accumulator tanks would impede progress of construction, the tank supports were redesigned to allow installation of the gauges at any time prior to start-up.

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MAINTENANCE DIVISION

February, 1951

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GENERAL:

The divisions backlog of work as of February 28 was 6, 115 mandays, which represents 19.2 days of work for the present force.

100 AREAS

100-B Area

The water sampling lines from the discharge end of the process water tubes of the "B" pile were revised to provide a more direct flow to the sampling stations located in the X and Z rooms. This revision will reduce the time required for detecting the presence of contamination in any of the process water tubes.

100-D Area

During a planned shutdown of the "D" pile on February 14 and 15, the #24 vertical safety rod thimble equipped with a thermocouple, which was installed during the month of June, 1950, was replaced with another thermocouple thimble. A short circuit had developed in the wire leads to the thermocouple, thereby reducing its usefulness in the test program.

The originally installed equipment in the flow laboratory of the "D" pile building was dismantled and removed during the month. New test equipment consisting of four full length and sixteen half length process water tubes, supporting stands, heat exchangers, flash tank, and auxiliary steam and water piping was fabricated and installed. This installation will permit the Pile Technology Division to conduct extensive water tests and obtain comprehensive data on pile water flow characteristics.

100-F Area

Project M-713 - Development of Flexible Vertical Safety Rods

Approved drawings for the design of a flexible vertical safety rod were received and fabrication was started on this rod, which consists of 1/16" wall thickness 2¼" diameter stainless steel tubing cut to 15" lengths and inserted over boron steel spool pieces of the same length. The completed rod assembly will be installed in the "D" pile on a planned shutdown during the month of March.

Project M-823 - Thermocouple Equipped Vertical Safety Rod

During an emergency shutdown of the pile on February 18, caused by an electrical power failure, the #24 vertical safety rod thimble

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was removed and replaced with a thimble equipped with a thermocouple. This installation completes the scope of this project.

100-H Area

The "H" pile experienced an emergency shutdown on February 2 caused by a slug which ruptured in process water tube #2562. The procedure for removal of the ruptured slug proceeded in a routine manner until two slugs, which had unexpectedly adhered to each other, were pulled to the discharge mechanism located at the rear nozzle. As this equipment is designed to receive only one slug at a time considerable difficulty was experienced in removing the other slug as the spline mechanism would only operate remotely in a backward direction. The slug was eventually removed by personnel under controlled exposure time limits. A new spline mechanism has now been developed which will operate remotely in both a forward and backward direction and in the future will eliminate personnel exposure to contamination for similar occurrences. The pile resumed operation on February 6.

An emergency shutdown occurred to the "H" pile on February 18 because of an electrical power failure. During this period an investigation was made of process water tube #3177 to determine if there were any stuck slugs, as the Panellit gauge for this tube had indicated high pressure readings periodically. Investigation disclosed a slug was stuck in this tube and removal was carried on in a routine manner. During this shutdown an additional thirty questionable tubes were checked for stuck slugs, however, none were found.

Project M-810 - Control Mechanism - 105-H

Work was continued on the installation of the Groves control valve in the valve pit and related piping to the elevated water storage tanks. It is expected that this work will be completed during the month of March.

200 AREAS

200-West Area

A thirty foot section of the two steam coils in the caustic storage tanks in the 211-T Building failed and were replaced during the month. This failure was caused by the corrosive action of the caustic fumes coming in contact with the exposed sections of the steam coils. In the future it is proposed to rotate the inlet and outlet sections of these coils. The suggested method of rotating these coils will reduce the frequency rate of replacement.

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

The fourth unit has now been installed in the "T" plant and a work release has been received to fabricate a fifth unit to be used as a spare. However, no progress has been made on this unit as material for its fabrication has not been received. The installation

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of the stack valves and jets has been postponed until the existing ones are in need of replacement.

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

All work on this project is completed with the exception of some instrument calibration which is now in progress.

200 East Area

The regular monthly inspection of the Canyon 75 ton crane disclosed that the crane bridge axis was not perpendicular to the rails. This misalignment amounted to approximately 1¼". The crane was realigned and is now operating satisfactorily.

Metal Fabrication

The furnace shells in Hood #8 have been revised and are now made in two halves. This will permit the replacement of heating elements without removing the reactor tube. The results of this modification reduces the maintenance time in replacing these heating elements.

No unusual maintenance difficulities were encountered with the vacuum systems of the coating hoods during the month.

Project C-366 - Auxiliary Hood Enclosure

The framing for the enclosure in the building is now completed. Lucite panels are presently being installed and the overall project is approximately 80% completed.

Project M-738 - Revised Sanitary Water System

This project has been completed and accepted by a formal acceptance procedure without any exceptions.

Project M-739 - Auxiliary Ventilation for Dry Box Hoods

Fabrication is continuing on the thirty foot duct section that extends through the greenhouse and the installation of necessary piping is continuing. The overall project is approximately 50% complete.

300 AREA

The single joint in the "Micarta" track on the frost test machine in the 313 Building has been strengthened by gluing a strip of 1/8" masonite along the underside of the track for its entire length. This reinforcement of the "Micarta" joint should reduce the number of production delays caused by these joint failures.

One of the canning line centrifuges was converted from a manual operation to an automatic control cycle. An electric timer was installed

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so that the centrifuging time will be uniform on all production batches. The manual operated brake was replaced with a spring loaded type actuated by a solenoid which, when de-energized by the timer after completion of the centrifuging cycle, automatically sets the brake.

Project M-825 - Mechanical Rod Feeders

The majority of the fabrication and assembly work of the feeding devices for the Gisholt lathes has been completed. The ten Logan air valves requisitioned for this project have not been received, however, there are six of these valves in spare parts, which will be utilized to place six mechanical feeders in operation as soon as possible.

Project C-330 - Additional Ventilation Facilities-Bldgs. 313 & 314

Fabrication of a trial burn-out station and holder for burning out melt plant crucibles in the out-gasing furnace has been completed. Installation of this unit has been delayed awaiting delivery of structural channel.

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ELECTRICAL DIVISION

FEBRUARY, 1951

GENERAL

The schedule of work assignments at month end was 6,175 mandays for the ensuing month, or 2,417 mandays per exempt employee. A net reduction of 501 mandays reflects small decreases in all sections and 300 mandays for line crews.

The power demands for the month were:

	Date	February KW Demand	Comparative Jan. Demand
Process Load	2-1-51 (9:30-10:00 am)	69,000	66,300
Village Load	2-1-51 (5:00-5:30 pm)	31,500	33,200

Although not co-incidental, the total represents a new all time high established by record process load demand, reflecting increased construction activity including the North Richland construction townsite load. The Village peak demand is slightly lower than in January and may be declining seasonally. A chart is attached showing the 24 hour load for the peak day of the month.

Several important decisions were reached in discussions with design groups:

1) Construction and final operating power and telephone requirements were established for major Project C-431 and methods of achievement determined. Comparative electrical costs and requirements for possible sites were evaluated.

2) Special recommendations were made relative to spacing of anodes and cathodes of the E-W stainless steel line (Project C-362) resulting in reducing the feeder pole line construction required by approximately one mile.

3) Emergency power requirements were established for 300 Area--Hanford Works Laboratory combined use (B-899).

4) A review of normal requirements in the foregoing area in view of overhead line congestion led to the establishment of a budget item (B-1888) covering an underground system for new normal and emergency feeders.

5) For Project C-380 (Electric Metering - Village of Richland), preliminary meter service and accounting procedures were developed.

Telephone standards were reviewed and approved by the Electrical Standards Committee. Recommendations were made for simplification of the Committee structure to effect economy and to speed action.

An agreement was reached with the Atomic Energy Commission and the Bonneville Power Administration that the latter will provide for totalized metering of the two Richland Village substations to determine more accurately the overall peak demand.

AREA ACTIVITIES

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Modification of Line No. 1 of Project P-10 in Building 108-B was completed and work

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was started on modification of Line No. 3.

Tests are being conducted to determine the best type of lamps to use in the underwater fixtures in the 105 Reactor Building storage areas. Results to date indicate that considerable saving can be made using a special 300 watt weatherproof, rough service reflector flood lamps in place of the 200 watt PS-30 or the 300 watt standard reflector flood lamps currently being used because of greater life expectancy.

During an attempted start-up of 105-F Reactor Building on February 20, three 800 HP process pump motors (No's. 1, 3 and 11) failed in the coil jumpers, making a total of sixteen similar failures since start-up. Loss of production resulted in this area from 3:20 pm to 1:20 am. The successive failure of three motors on starting duty reflects on design which has been discussed with manufacturers and remedied in later installations.

An unscheduled shutdown of 105 H Reactor at 4:02 a.m., February 14, was caused by the tripping of 13.8 KV feeder No. L4 to the 190 H Process Water Building. The flag on the ground relay in Substation 151 H indicated that this relay had caused the trip out. A careful inspection of the breakers and cables failed to uncover any trouble so the feeder was restored to service at 4:40 a.m.

The 440 volt power supply to the 284-W Building was interrupted at 4:18 p.m., February 9, when baling wire, left on the roof by construction forces, blew from the roof into the transformer station. Service was restored at 4:55 p.m.

A broken trolley shoe to the hoist motor on the 221-B Building 75 ton crane caused a six hour production delay on February 27. The long delay was due to a highly radioactive load on the hook which could not be released. The working time limit on the crane was one minute.

A plant wide storage battery survey was completed resulting in recommendation for a FY-52 Budget Item for the replacement of 22 batteries after 7-8 years of active service. The replacement requirement is in line with normal expectation.

TRANSMISSION AND DISTRIBUTION

A pole top fire occurred on a 230 KV structure three quarters of a mile east of the 251 Substation on February 18. It had evidently been burning for some time before discovered, and by the time the fire was extinguished the structure could not be saved. A Critical Power Grade Y was established for all areas for a period of 20 hours and a new structure was installed. This was the first fire experienced on a tangent structure and plans are to bond all insulator suspension eyebolts to the ground wire on these structures similar to that previously performed on dead-end and angle structures.

Early in the month, low voltage on the Bonneville 115 KV lines from the South Richland Substation caused several cases of motor and equipment trouble in the 300 Area. Transfer of the 300 Area load to the Benton Substation corrected the trouble because the voltage at this substation was approximately 10 percent higher than at South Richland.

The 2300 volt feeder to the Hot Semi-Works in the 200-E Area was completed. A 13 quad telephone cable was also installed to this area. Complex rearrangement work was performed in the vicinity of the 221-U Building to relocate important operating lines and to supply power for construction forces.

A total power outage of four hours for the 200 Areas was arranged for Sunday, February 25, to permit the removal of shield wires and rearrangement of guys in the 251 Substation in preparation for the lump-sum contractor's work in this station on Project C-295. During this outage, partial production was maintained in the 200 Areas by using the emergency generators in the Power House Buildings.

Eleven transformers were installed, four were exchanged for larger sizes and several spans of primary wire were increased in size in preparation for the Fourth Housing Addition in Richland.

Several new items were introduced into the 1952-53 FY Budget.

A) Distribution pole and anchor log replacement program.
B) Building of 220 KV tangent structures.
C) 300 Area underground cable system.
D) Elimination of congested overhead and placement underground--south of 200-W Power House.
E) Removal of old 66 KV construction lines, vicinity of 200 Areas.
F) Process Areas Distribution Headquarters.

TELEPHONE SECTION

A 16 pair cable and terminal were installed to serve the new Permanent Records Storage Building in Richland.

Telephone drop wires to 205 prefab houses were relocated as required by Project C-363.

The 200-W Area crash alarm panel was revised to increase its capacity to 20 lines.

An additional trunk was established from "BY" Exchange to the 100-B, and four additional trunks were established from "BY" to the 300 Area. This makes a total of 12 trunks in service to each of these points from "BY".

Arrangements were made with North Electric Company for them to make the following corrections in the 200 Area and White Bluffs Exchanges:

A) Slow cut-off of ringing voltage from Richland connector switches.
B) Convert ring down trunks of Richland Exchange to 2000 ohm operation.
C) Install impulse correcting repeaters in the incoming trunks of the 200 Area and White Bluffs Exchanges.
D) Arrange crash alarm feature in above exchanges to permit individual release.

Studies were completed to enable introduction of the following items into the FY-52-53 Budgets as required by normal growth and new major Project C-431.

A) Telephone cable inspection and lashing program.
B) Installation of 13 quad cable to Point "I" from "BY".
C) New 200 line telephone exchange, 100-B Area and vicinity.
D) Additional 100 lines, White Bluffs Exchange.
E) Additional voice repeaters, Richland Exchange.
F) Additional line equipment and conversion to four party service, Richland Exchange.

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

	Lines in Service	Stations in Service	Vacant Lines
Richland	3781	5988	219
Project	5255	7559	506

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POWER STATISTICS - ELECTRICAL DIVISION
FOR MONTH ENDING FEBRUARY 28, 1951

ITEM	ENERGY - MW HRS. Jan.	ENERGY - MW HRS. Feb.	MAX. DEMAND - KW Jan.	MAX. DEMAND - KW Feb.	LOAD FACTOR - % Jan.	LOAD FACTOR - % Feb.
230 KV SYSTEM						
A-2 Out (100-B)	7,720	7,040	11,700	12,200	88.7	85.9
A-4 Out (100-D)	13,280	12,090	20,600	20,700	86.6	86.9
A-5 Out (100-H)	8,748	6,984	14,550	13,800#	81.0	75.3
A-6 Out (100-F)	3,340	6,330	10,300	11,000	43.6	85.6
A-8 Out (200 Areas)	4,608	4,212	7,200	7,920	86.0	79.1
TOTAL OUT	37,696	36,656	64,350**	71,620**	78.7	76.2
MIDWAY IN	38,314	37,262	61,200*	62,000*	84.1	89.4
Transm. Loss	618	606				
Percent Loss	1.6	1.6				
115 KV SYSTEM						
B1-S4 Out (N.Richland)	1,723	2,040	3,802	3,686	60.9	82.4
BB1-S1 Out (Richland)	8,208	6,884	16,320**	15,570**	67.6	65.8
BB1-S2 Out "	8,336	7,236	16,920**	16,200**	66.2	66.5
BB3-S4 Out (300 Area)	824	752	1,840	1,840	60.2	60.8
TOTAL OUT	19,091	16,912	35,080**	37,296**	73.1	67.5
Benton In	2,090	10,060	36,400*	36,000*	77.2	41.6
S. Richland In	17,520	7,160	38,100*	36,300*	61.8	29.4
TOTAL IN	19,610	17,220	74,500**	72,300**	35.4	35.4
Transm. Loss	519	308				
Percent Loss	2.6	1.8				
66 KV SYSTEM						
B7-S10 Out (W.Bluffs)	450	417	1,237	1,237	48.9	50.2
Hanford Out	372	309	600	600	83.3	76.7
TOTAL OUT	822	726	1,837**	1,837**	60.2	58.8
HANFORD IN	825	729	1,800*	1,700*	61.6	63.8
Transm. Loss	3	3				
Percent Loss	.4	.4				
PROJECT TOTAL						
230 KV Out	37,696	36,656	64,350**	71,620**	78.7	76.2
115 KV Out	19,091	16,912	35,080**	37,296**	73.1	67.5
66 KV Out	822	726	1,837**	1,837**	60.2	58.8
TOTAL OUT	57,609	54,294	101,267**	110,753**	76.5	72.9
230 KV In	38,314	37,262	61,200*	62,000*	84.1	89.4
115 KV In	19,610	17,220	74,500**	72,300**	35.4	35.4
66 KV In	825	729	1,800**	1,700**	61.6	63.8
TOTAL IN	58,749	55,211				
Transm. Loss	1,140	917				
Percent Loss	1.9	1.7				

* Coincidental Demand
** Non-Coincidental Demand
\# 19,800 KW Maximum with 100-D tied in.

Average Power Factor - 230 KV System--94.3
Average Power Factor - 115 KV System--96.3
Average Power Factor - 66 KV System--86.4

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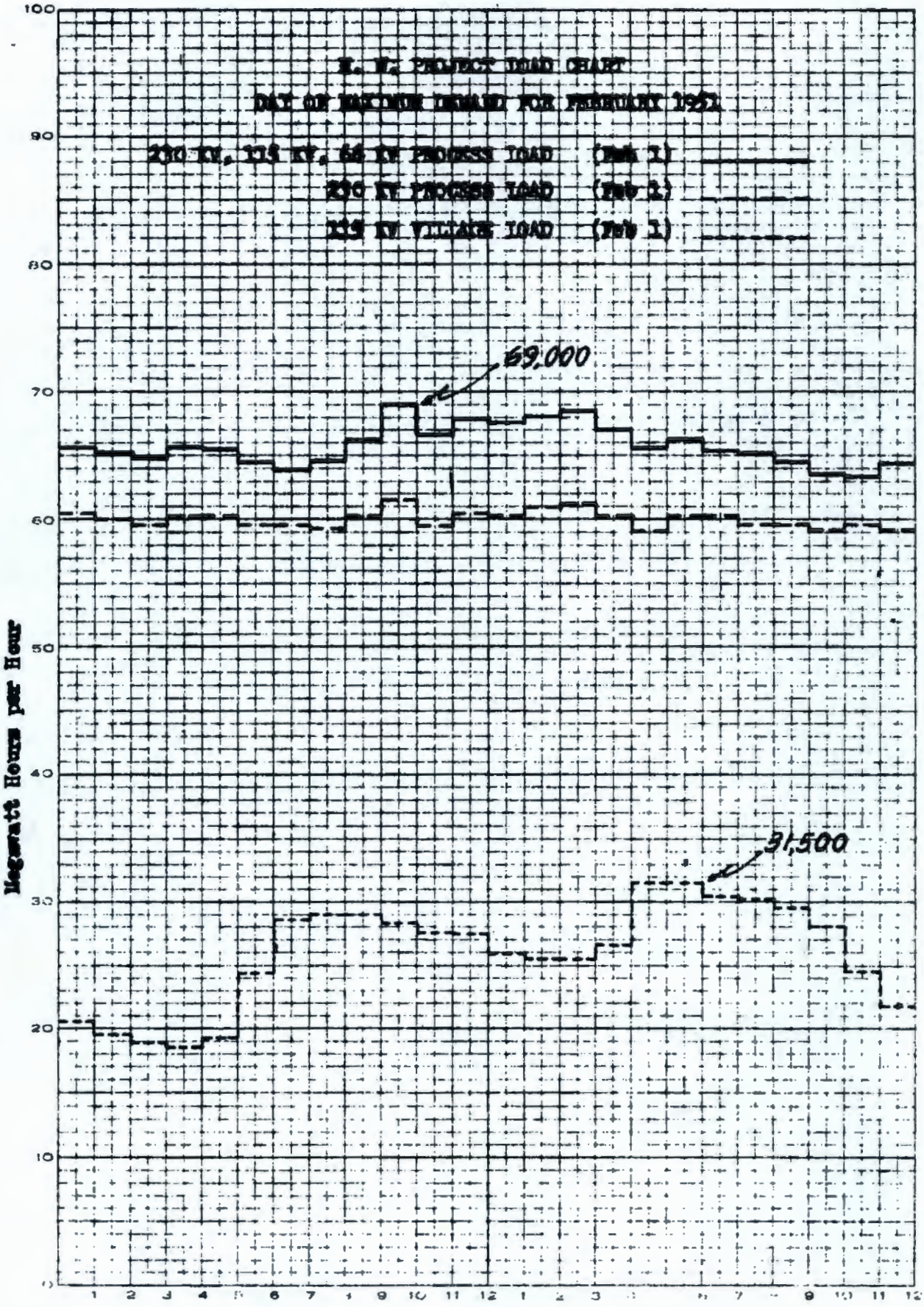

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By A[redacted]
By [redacted] - 1-31-52
Date 12-18-51

TRANSPORTATION DIVISION
MONTHLY REPORT
FEBRUARY 1951

GENERAL

Transportation Division personnel forces decreased by 5 non-exempt employees during the month from 610 to 605 by 10 new hires, 3 transfers in, 1 re-activation - personal illness, 12 transfers out, 6 terminations and 1 de-activation - personal illness.

RAILROAD ACTIVITIES

Commercial cars handled during February decreased 34.4% over January because of the prolonged strike by railroad employees throughout the United States. Coal receipts were very low as suppliers fourd it necessary to discontinue loading coal for Hanford Works. Following the end of the strike normal coal receipts were resumed with no attempt being made to immediately make up the lost tonnage.

Process movements declined from the abnormal high of 233 in January to a normal level of 154 in February with all service being completed as scheduled.

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

Due to lack of work brought about by the railroad strike, it was necessary to furlough 4 Mechanics for the period February 8 through February 15 and 12 trainmen for the period February 8 through February 18.

The following recapitulation indicates the number of commercial cars handled:

Carload Movements - General Electric Company

Loads In	Empties In	Loads Out	Empties Out
564	31	31	584

Carload Movements - Subcontractors and Others

	Loads In	Empties In	Loads Out	Empties Out
Atkinson & Jones Co.	62	-	-	58
L. E. Baldwin & Associates	10	-	-	9
F. J. Early	9	-	-	7
Hagen & Wolfe Co.	1	-	-	-
McPhail Engineering Co.	2	-	-	-
Morrison-Knudsen Co.	4	-	-	-
S. S.Mullen Co.	3	-	-	2
Richland Fuel & Lumber Co.	15	-	-	15
Waale Camplan Co.	1	-	-	1

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Transportation Division

Installed hardwood blocks between male and female center castings on the Government-owned off-Plant railroad car to conform with American Association of Railroads Specifications.

One 30-ton Plymouth locomotive located at North Richland was prepared for off-Plant shipment.

Inspection of 80-ton Diesel electric locomotive 39-3722 revealed one cracked wheel. Preparations are being made to install a set of reconditioned wheels.

Completed repairs to steam lines on two Milwaukee baggage cars damaged on-Plant.

Railroad track maintenance and rehabilitation work continued on a near normal basis throughout the five sections. Removal of snow from switches, turnouts and flangeways required 411 man-hours. Surfacing was in progress on the 183-B track, Pierce's Siding, "E" line from the Cold Creek road crossing to the Batch Plant turnout, between Mile Posts A-21 and A-22, and 1100 Area turnout requiring 2,301 man-hours. Relaid 60 rails in the Pierce Siding with 85# rail making this track available and safe for process operation required 440 man-hrs. Installed 315 cross ties and removed salvage ties from 100-B and 100-D Areas requiring 656 man-hours. Burning weeds along railroad right of way required 399 man-hours. Sand blow work required 207 man-hours.

AUTOMOTIVE ACTIVITIES

The Area Bus System transported 11.6% fewer passengers in February than in January. This reduction resulted from the 28 day month with a holiday schedule for Washington's Birthday. The following tabulation indicates the February passenger volume by shifts and the total revenue received.

No. 1 outbound and No. 3 inbound	24,014
No. 2 outbound and No. 1 inbound	52,524
No. 3 outbound and No. 2 inbound	50,132
Total	126,670
Revenue	$ 6,333.50

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

Passenger busses - 100-B	11
Passenger busses - 100-D	12
Passenger busses - 100-F	11
Passenger busses - 100-H	11
Passenger busses - Hanford	4
Passenger busses - 200-West	19
Passenger busses - 200-East	12
Passenger busses - 300 Area	7
Passenger busses - Riverland	3
Passenger busses - Pistol Range	1
Passenger busses - White Bluffs	2
Passenger busses - North Richland	3
700-300 Area Shuttle	26
Inter-Area Passenger Service	3
Inter-Area Express Service	1
Inter-Area Mail Service	1

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By Authority of
By Mayfield 1-31-52
Date

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Transportation Division

A special bus tour of the Plant Areas was made on February 10 for those attending the Regional Meeting of the American Society for Engineering Education.

A special bus tour of the Plant Areas was made on February 20 for the Military Liaison Committee.

Special shuttle bus service within the Pasco Warehousing Area was rendered on February 12, 13 and 14 at the request of the Atomic Energy Commission. This service was for transporting prospective buyers for the General Services Administration.

The Richland Local Bus System transported 13% fewer passengers in February than in January. This reduction resulted from a 28 day month which included a holiday and more favorable weather conditions. Volume of service rendered is indicated in the following statistics:

Total passengers, including transfers	41,857
Total bus trips	3,257
Total bus miles	17,914
Total revenue	$ 2,901.35

Off-Plant automobile trips (Company business and/or official visitors) totaled 202.

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

Applicants:	Male	97	Number retested	0
	Female	3	Number rejected	1
		100	Number tests given	100

Permits issued:	Limited to driving with glasses	19
	Unlimited	80
		99
Permits reissued:		25

The following tabulation indicates the Plantwide usage of automotive equipment:

Code	Type	No. of Units	Total Mileage
1A	Sedans	320	543,591
1B	Busses	155	224,758
1C	Pickup Trucks	474	283,869
1D	Station Wagons	111	125,899
1E	Armored Cars	12	523
1G	Jeeps	2	515
68 Series	Trucks	317	96,465
		1,391	1,275,620

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By Authority of [redacted] Review Board
By [redacted] 3-31-52

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Transportation Division

Date 12-18-51

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

	Gasoline	Diesel Fuel	50 Cetane	Kerosene	White Gas
Stock at start of month	44,400	18,051	8,863	1,948	200
Received during month	102,144	15,415	23,150	7,580	
Total	146,544	33,466	32,013	9,528	200
Delivered to Areas	101,894	20,496	26,502	4,650	178
Stock at end of month	44,650	12,970	5,511	4,878	22

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 over-hauls, 116 Class A Inspections and Repairs, 1,244 Class B Inspections and Lubrications, 1,612 other routine maintenance repairs and service calls, 498 tire repairs, and 520 wash jobs.

Overhauled 66 Diesel engine injectors. Nine 40-passenger White busses were serviced and assigned to Area Bus Operations.

Well drilling equipment assigned to Project C-382 was returned and excessed. A straddle lift truck was procured from excess for Project C-411. One 6x6 truck was made available from the Assignment Pool for Project C-326.

Initiated a survey to gather information necessary for a complete study of the 300 Area Motor Pool operation.

Survey continued on the 700 Area Motor Pool during the month resulting in the revision of the authorization signature list, designating the vehicles by Divisions, and determining the proper division cost codes to be used on pool tickets.

LABOR ACTIVITIES

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

	MC 1	MC 3	MC 4	MC 5
Stock at start of month	0	1,035	0	0
Received during month	0	0	0	0
Dispensed during month	0	0	0	0
Stock at end of month	0	1,035	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	77	125	103	80	45	23	0	453
Cars other material	4	3	3	5½	15	6	4	40½
Cars loaded out	0	0	0	0	0	0	0	2

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Transportation Division

Crushed and stockpiled 532 cubc yards of 5/8" crushed rock and 220 cubic yards of 1/4" crushed rock requiring 297 man-hours. Removal of ice and snow from the Plant Road System required 423 man-hours. Unloading of coal at the Hanford Coal Dock and delivery of 558 tons to the 101 Building required 97 man-hours. Maintenance of primary roads required 230 man-hours; secondary roads required 128 man-hours; guard rails and signs on road required 182 man-hours.

Handling of miscellaneous materials for the Stores Division at White Bluffs required 1905 man-hours.

Handling and hauling of materials for the Stores Division in the 700, 1100, 300 Areas and Pasco required 319 man-hours.

Handling of Area deliveries required 1309 man-hours, Stores deliveries 309 man-hours, and office furniture 819 man-hours.

Handling of 8 carloads of scrap, 13 carloads of equipment, 40 truckloads of equipment and 108 truckloads of material recuired 2,330 man-hours.

Routine Area maintenance was performed in all production areas. Approximately 2,375 man-hours were required in connection with the 105 Buildings and the 107 Basins. Labor and transportation equipment was furnished for Projects P-172, P-192, P-282, P-291, P-330, P-346, P-347, P-349, P-355, P-363, P-366, P-369, P-378, P-382, P-399, P-408, P-409, P-410, P-411, P-412, M-738, M-740, M-763, M-773, M-802, M-810, M-816, M-822, and M-824.

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By Authority of [redacted]
By [redacted]

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POWER DIVISION
FEBRUARY 1951

GENERAL

A feasibility report on the "Proposed Utilization of Natural Gas Fuel in Hanford Works Boiler Houses" was received from the Project Engineering Divisions on February 26. On the basis of present information, it is not now considered feasible to proceed with the conversion to natural gas fuel.

PERSONNEL AND ORGANIZATION

No. of Employees on Payroll - February

Beginning of Month	568
End of Month	575
Net Increase	7

The indicated net increase is the result of the transfer into the Division of nine employees, while two employees terminated.

100 AREAS

Between February 9 and 13, raw water turbidities increased progressively at all locations to a maximum of approximately 240 ppm, with an all time high for raw water iron of 5.3 ppm. As a result of adverse raw water conditions that had no precedent at this Works, some filter operation difficulties were experienced, and water quality was effected to a slight degree.

In the 100-H Area, sections of the 6-inch Fire and Sanitary water main were out of service from February 5 until 19, for the purpose of making a 6-inch connection for Army Camp use.

The removal of deaerators was started in the 100-D Area, 185 Deaerator Building on February 7. By month's end, deaerators Nos. 3 through 10 had been removed. This is in connection with Deaerator Removal Project C-172.

A grade "Y" power condition was in effect for seventeen and one-half hours on February 18 and 19 in all areas. During this period, normal process water pressures were reduced as requested by the "P" Division.

In the 100-H Area, on February 14, a circuit breaker in the 151 Substation opened and caused interruption to four operating process water pumps in the 190 Process Pump House. This resulted in a process water pressure reduction of 120 psi below normal, and a shutdown of production facilities. Normal operating conditions were restored in forty minutes.

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Power Division

In the 100-F Area, 190 Process Pump House, the Nos. 1, 8, and 11 process pump motors failed during attempted starts between 3:45 p.m. and 4:30 p.m. on February 20. Repairs were completed on the No. 11 pump motor by 1:15 a.m. on February 21, permitting the resumption of normal water flow to the Pile. The No. 8 pump motor was replaced on February 21, and the No. 1 motor on February 26.

In the 100-H Area, 190 Process Pump House, the process water pressure to the Pile was increased 5 psi on February 27 at the request of the "P" Division.

In the 100-B Area, 184 Power House, the deaerating water heater was removed from service for retubing on February 26.

200 AREAS

On February 9, in the West Area, a coil of wire blown from the roof of the 284 Power House resulted in a short circuit on the emergency circuit, causing the normal power supply to relay out and the emergency generator to come into service. Operations were not affected and the circuit was restored to normal in forty minutes.

In the East Area, the raw water service to the "B" process area was off for six hours on February 22 to make a 4-inch connection for the Waste Metal Removal and Recovery Project. This work was in connection with Project C-362.

300 AREA

Due to increased demand of Fire and Sanitary water in the 321-S Cold Separations Laboratory Building, well pumps No. 3 and 4 were put into service on February 8.

POWER ENGINEERING SECTION

A high flow filter capacity test was begun at 100-B Area on February 1. The average filter flow rate has been 15 percent above design maximum capacity since the start of the test. Tests will be continued through the spring months, if conditions permit.

Work has been initiated on the installation of a battery of experimental sand and anthrafilt filters in the 183-DR Filter Plant. The effect of particle size on water quality and length of filter run will be evaluated.

An experimental diatomaceous earth filter was put into operation in the 100-DR Area on February 26. The run will continue for an indefinite period.

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Power Division

In the 200 West Area, 234-5 Facility, the use of Calgon to minimize scale formation on wet cell air filters in the No. 8 supply fan, continues to show favorable results.

Preparation of a Project Proposal for the "Expansion of the 300 Area Power House and Pumping Station Facilities" was completed and forwarded to the Appropriations and Budget Committee on February 28.

A study to determine the feasibility of increasing process water pressure from the 190 Process Pump House dual pumps has been made. The results of this study including the changes involved in connection with the contemplated increases in pressure were summarized in a documented report.

From results of tests made on the ventilation system in the 200 West Area, 234-5 Facility, it has been determined that it is feasible to operate with air pressures equalized in Zone 1 and Zone 2. Operation of the building in this manner will facilitate new construction in the 234-5 Facility, and will provide additional space required by the "S" Division.

Tentative plans for expansion and design of the 300 Area power house and pumping station have been developed by representatives of the Power Division and the Engineering and Construction Divisions.

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POWER DIVISION STATISTICS

From February 1, 1951
Through February 28, 1951

		AREAS				
RIVER PUMP HOUSE (Building 181)		100-B	100-D	100-DR	100-F	100-H
River Elevation (msl ft.)	(max)	393.3	384.4		370.8	376.5
	(min)	386.4	379.3		365.6	371.4
	(avg)	390.3	382.0		368.4	374.0
River Temperature	avg. °F.	36.9	37.8		37.9	38.3
Water to Reservoir	gpm avg. rate	41,261	52,278 30,366		37,984	43,109
RESERVOIR (Building 182)						
Flow to Filter Plant	gpm avg.rate	36,206	43,734		34,290	39,316
Flow to Cond. System	gpm avg.rate	3,123	3,111		2,957	3,463
Flow to Cond. System (DR)	gpm avg.rate		3,533			
Flow to Export System	gpm avg.rate	1,932	1,900		737	330
Flow to Export System	gpm nor.rate	4,899	4,899		4,899	4,899
Chlorine, Added (#1 Inlet)	Pounds	8,375	13,990		11,200	12,000
FILTERED WATER (Building 183)						
Flow to Power House	gpm avg.rate	287	513		301	276
Flow to Process (190)	gpm avg.rate	31,185	30,075	36,571	30,702	34,925
Flow to DR	gpm avg.rate		6,833			
Flow to Fire & Sanitary	gpm avg.rate	213	193		212	100
WATER TREATMENT (Building 183)						
Chlorine - Consumed	pounds	3,925	4,720	8,680	4,800	4,000
	ppm avg.	.92	1.11	.85	1.29	1.13
Lime - Consumed	pounds	63,550	72,950	52,520	58,200	59,500
	ppm avg.	5.2	5.0	5.1	5.0	4.5
Coag - Consumed	pounds	146,210	169,500	128,850	120,160	145,120
	ppm avg.	12.0	11.5	12.6	10.4	11.0
Raw Water pH	pH avg.	7.93	7.92	8.04	7.90	8.00
Finished Water pH	pH avg.	7.69	7.71	7.65	7.73	7.75
Alkalinity, M.O. - Raw	ppm avg.	62	61	60	59	59
Finished	ppm avg.	60	57	56	59	59
Residual Chl. - Finished	ppm avg.	.15	.10	.15	.13	.16
Iron - Raw	ppm avg.	.29	.45	.49	.23	.41
North Clearwell	ppm avg.	.021	.020	.016	.013	.017
South Clearwell	ppm avg.	.018	.022	.015	.015	.019
Hardness - Finished	ppm avg.	73	68	73	75	74
Turbidity - Raw	ppm avg.	15	18	22	17	17
Filtered	ppm avg.	0	0	0	0	0

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Power Division Statistics

From February 1, 1951
Through February 28, 1951

POWER HOUSE (Building 184)		AREAS 100-B	100-D	100-DR	100-F	100-H
Maximum Steam Generated	lbs./hr.	168,000	312,000		172,000	217,000
Total Steam Generated	M lbs.	96,171	178,647		94,481	82,096
Steam Load - Avg. Rate	lbs./hr.	143,112	265,844		140,597	122,167
225 psi Steam to Plant(est)	M lbs.	80,740	150,680		79,307	68,804
15 psi Steam to Plant(est)	M lbs.	813	813		813	813
Coal Consumed	Tons	6,066	10,855		6,023	5,661
Coal in Storage (est)	Tons	41,703	42,066		42,119	40,493
TANKS (Building 190)						
Flow to 190	gpm avg.rate	30,935	29,825	36,571	30,452	34,675
Dichromate - Consumed	pounds	20,100	19,800	23,100	21,000	24,200
Chemical Analysis:						
pH	pH avg.	7.63	7.62	7.65	7.65	7.68
Dichromate	ppm avg.	1.8	1.9	1.9	1.9	1.9
PROCESS PUMP ROOM (Building 190)						
Flow to 105	gpm avg.rate	30,760	29,650	35,370	30,277	34,500
	gpm nor.rate	33,100	33,200	36,150	31,700	41,000
Water Temperature	Avg. °F.	41.7	42.8	41.4	41.2	40.1
VALVE PIT (Building 105)						
Solids Consumed	pounds	2,800	2,000	2,250	1,400	1,600
Chemical analysis: A, B, C, & D Headers						
Standard limits						
pH 7.5 - 7.8	pH (max)	7.65	7.65	7.65	7.70	7.70
	(min)	7.60	7.55	7.55	7.60	7.60
	(avg)	7.62	7.62	7.62	7.65	7.60
$Na_2Cr_2O_7$ 1.8 - 2.2 ppm	(max)	1.9	1.9	2.0	2.0	2.0
	(min)	1.7	1.7	1.7	1.8	1.8
	(avg)	1.8	1.8	1.8	1.8	1.8
Iron	ppm (max)	.035	.030	.040	.030	.095
	(min)	.010	.010	.010	.010	.010
	(avg)	.017	.016	.018	.015	.025
Chlorides	ppm (avg)	1.3	1.4	1.3	1.4	1.4

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Power Division Statistics

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From February 1, 1951
Through February 28, 1951

		200 AREAS	
		200-E	200-W
RESERVOIR (Building 282)			
Raw Water Pumped	gpm avg. rate	2,127	2,772
FILTER PLANT (Building 283)			
Filtered Water Pumped	gpm avg. rate	310	747
Chlorine Consumed	lb.	113	204
Alum Consumed	lb.	1,711	3,335
Chlorine Residual - Sanitary Water	ppm	.50	.45
POWER HOUSE (Building 284)			
Maximum Steam Generated	lbs./hr.	47,000	152,000
Steam Generated - Total	M lb.	24,180	69,474
Steam Generated - Ave. Rate	lb./hr.	35,982	103,384
Coal Consumed (est.)	Tons	1,641	4,395
Coal in Storage (est.)	Tons	9,915	21,014

		300 AREA
POWER HOUSE (Building 384)		
Maximum Steam Generated	lbs./hr.	31,200
Steam Generated - Total	M lb.	17,301
Steam Generated - Avg. Rate	lb./hr.	25,746
Coal Consumed - Total (est.)	Tons	1,148
Coal in Storage (est.)	Tons	1,672
SANITARY AND FIRE SYSTEM		
Sanitary Water from 3000 Area	gal.	22,256,640
Well Water Pumped - Total	gal.	11,410,560
Total Water Per Day	gal/day	1,202,400
Total Water	gpm avg. rate	835
Chlorine Residual	ppm	.40

		MISCELLANEOUS AREAS
White Bluffs		
Ice Manufactured	lbs.	900
101 Shops		
Coal Consumed	Tons	550

[redacted] DECLASSIFIED

PROJECT ENGINEERING DIVISIONS MID-MONTH STATUS REPORT
100 AREA PROJECTS

DECLASSIFIED

DATE FEBRUARY 15, 19 51

HW - 20438 DEL

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

ENG REQ NO	DATE RECEIVED	BLDG OR AREA	DESCRIPTION OF WORK	SPONSORING DIVISION	PROJECT NO	ESTIMATED COST	ENGINEERING STATUS PER CENT COMPLETE	PROJECT DATE	APPROPRIATION REQUEST DATE	APPROVED A & B COMMITTEE	ROUTED TO GOVERNMENT	DIRECTIVE DATE	AUTHORIZATION RECEIVED	WORK RELEASE	FIELD WORK PER CENT COMPLETE	REMARKS
A1034	5-29	105BDF	DISMANTLING OF EQUIPMENT IN THE DEMINERALIZING AND DEAERATING PLANTS	POWER	C-172	360,200		7-11-47	-	-	7-11	3-31-48	4-4	4-7		SUBCONTRACT WORK PROGRESSING
A1032	1-?	108F	BIOLOGICAL LABORATORY, PARTS I, II, & III	H.T.	C-192	1,200,000		PT. III 1-2-51	1-2	1-9	1-12	MOD.5 2-8-51	2-14	ADD.5 2-1		PART III ($79,000 NEW FUNDS) AUTHORIZED
A1044	5-14	105F	NEUTRON SPECTROMETER	PILE TECH.	C-290	17,400		9-5-48	9-9	9-14	9-14	10-14	10-11	10-11		WORK PROGRESSING
A1045	7-29	100DEF	INCREASED SHIELDING - FRONT NOZZLE CAPS	P	C-306	88,000		10-6-48	10-11	11-10	11-10	MOD.2 1-2-51	1-9	ADD.4 1-11		PROJECT NEARING COMPLETION
A1057	4-20	105BF	EFFLUENT DIVERSIONARY OUTLET (105-107 B & F)	P	C-321	138,000										PROJECT RETURNED FOR RESCOPING
A1092	3-17	TRACT HOUSE	P-11 PROJECT, PARTS I, II	PILE TECH.	C-340	297,500		5-23-49	5-20	6-1	6-1	MOD.2 10-12-50	10-16	ADD.4 10-23		WORK PROGRESSING
A1093	3-17	TRACT HOUSE	P-11 PROJECT, PART III	PILE TECH.	C-340	49,500		12-12-50	12-12	1-9-51	1-12-51	MOD.3 1-26	1-29	ADD.5 2-1		HIGH PRIORITY MATERIAL ORDERED
A1057	4-27	107	FACILITIES FOR EXPONENTIAL EXPERIMENTS	PILE TECH.	C-346	391,000		8-1-49	8-16	8-17	8-17	10-31	11-3	ADD.3 11-29		PROJECT REACTIVATED
A1100	5-27	105BDF	NOZZLE GALVANIZING AND REPLACEMENT — AUTHORIZED EST. ENTIRE COST	P	C-347	775,000 430,000		8-15-49	8-15	10-12	10-12	12-28	1-4-50	1-13		105F AREA COMPLETED
A1110	7-21	105BDF	PILE CLEARANCE - INNER ROD ROOM WALLS 105BDF	P	C-355	40,600		9-26-49	9-26	12-13	12-14	1-18-50	1-19	2-8		STOP WORK NOTICE ISSUED 1-29-51
A1125	11-23	105H	P-13 - FIRST HANFORD PILOT CHANNEL TEST RIG (ANL #14G)	PILE TECH.	C-379	130,000		3-31-50	3-31	4-11	4-12	MOD.1 10-12	10-17	ADD.2 10-24		UNIT PLACED IN OPERATION
A1130	2-?	108B	P-10-A EXPANSION	PILE TECH.	C-383	300,000		4-12-50	4-13	4-20	4-20	5-29	6-1	6-9		AWAITING CONSTRUCTION COMPLETION NOTICE
A1141	8-25	108D	P-10-X PROD. PLANT (ONLY SCOPING WORK AUTHORIZED)	P	C-388	100,000										PROJECT TO BE CLOSED. ENGRG. WORK BEING CONTD. UNDER PROJ. C-411 AND C-412
-	-	108F	REMOVAL OF EQUIPMENT FROM BLDG. 108-D	P	C-396	109,000		7-13-50	7-14	7-14	7-14	MOD.1 10-19	10-25	ADD.1 7-20		WORK PROGRESSING
A1135	3-15	106B	P-10-C, PART I (METAL PROTOTYPE UNIT) P-10-D ("HOT" DEVELOPMENT FACILITIES) PARTS I, II	PILE TECH.	C-399	1,466,000		8-7-50	8-17	8-30	8-31	MOD.2 2-6-51	2-8	ADD.2 2-12		DESIGNS PROGRESSING. FIELD WORK IN PROGRESS. PROJECT PREPARED FOR A & B COMM.
A1142	8-20	105DR	IN-PILE CONTROLLED ATMOSPHERE - EXPERIMENTAL FACILITIES	PILE TECH.	C-410	140,000		10-17-50	10-17	10-30	10-31	11-13	11-17	12-7		G.E. & C.L. FABRICATING FURNACE TUBE. WORK PROGRESSING
A1141	8-25	105H	P-13 SLUG STORAGE AND SHIPPING FACILITIES (ENGRG. & PROCUREMENT OF CRITICAL ITEMS) — AUTHORIZED EST. ENTIRE COST	P	C-411	700,000 (200,000)		11-22-50	11-22	11-22	11-22	12-5	12-7	ADD.1 1-29		PROGRAM BEING RESCOPED
A1141	8-25	108B	P-10-X EXTRACTION FACILITIES (ENGRG. & PROCUREMENT OF CRITICAL ITEMS) — AUTHORIZED EST. ENTIRE COST	P	C-412	615,000 (750,000)		11-20-50	11-20	11-20	11-21	11-24	11-24	12-6		PROGRAM BEING RESCOPED
A1138	7-24	108,F, D-DR	CO2 BULK STORAGE FACILITIES, 105 B, F AND D-DR AREAS	P	C-420	45,000		11-3-50	11-3	12-27	12-27	1-12-51	1-19	ADD.1 2-14		WORK RELEASE ISSUED
A1154	1-17	105C	WATER QUALITY EXPERIMENTAL PROGRAM — AUTHORIZED EST. COST UNDETERMINED	PILE TECH.	C-424	95,000		1-17-51	1-17	2-2	1-17	2-1	2-1	ADD.1 2-14		PROJECT IN PREPARATION
A1068	10-29	107	DEVELOPMENT OF FLEXIBLE VERTICAL SAFETY RODS	P	M-713	18,500		5-18-49	5-18	5-27	5-27	7-19	7-22	9-26		TEST SATISFACTORY; FULL ROD TEST BEING FABRICATED
A1104	6-?	107B	REPAIRS TO 107 BASIN (IMMEDIATE PROGRAM ONLY)	P	M-723	18,100		9-15-49	9-15	10-12	10-12	10-25	10-27	12-2		PROJECT COMPLETED 12-22-50 COMPL. NOTICE ISSUED 1-19-51
A1116	9-30	1136	HEALTH MONITORING AND STORAGE FACILITIES	PILE TECH.	M-769	16,100		3-20-50	3-20	4-28	4-28	5-23	5-23	8-7		WORK PROGRESSING
A1150	11-10	101	GRAPHITE LABORATORY — AUTH. SUSP. CODE EST. ENTIRE COST	PILE TECH.	M-771	3,000 (40,000)							1-16-50	ADD.1 1-19		DESIGN INITIATED PROJECT BEING PREPARED
A1149	11-15	107	EMERGENCY REPAIRS TO 107-DR AND 107-H RETENTION BASINS	P	M-824	(20,000)							12-18-50	ADD.2 2-26-51		TEMPORARY REPAIRS PROGRESSING
A575	5-?	105DR	PILE TECHNOLOGY STORAGE & TEST BUILDING	PILE TECH.		(95,000)										AWAITING INFORMATION FROM TECH. DIVISION
A-85	7-31	109?	HOT MAINTENANCE MACHINE SHOP	MAINT.		41,000										DESIGN PROGRESSING FOR 108-D BUILDING INSTALLATION
A619	1-8	186D	GRAPHITE STORAGE - 186-D CLEAR WELL	STORES		(53,000)										PROJECT IN PREPARATION
A1055	6-29	100B	INSTALL STEEL PROCESS SEWER 105B - 107B	P		(550,000)										REC. REPORT IN ROUGH DRAFT FORM
A1086	2-?	100BDF	HIGH TANK CONTROL VALVES	P		40,000										PROJECT RETURNED FOR RESCOPING
A1118	10-14	105F	DOWNCOMER REPLACEMENT	P		(100,000)										HELD UP FOR HIGHER PRIORITY WORK
A1119	10-17	100 200 300	COAL METERING FACILITIES	POWER		31,400										TEMPORARILY HELD IN ABEYANCE
A1122	11-9	100	DEVELOPMENT OF FLEXIBLE HORIZONTAL CONTROL RODS	P		(50,000)										DESIGN IN PROGRESS, ROUGH DRAFT OF PROJECT BEING REVIEWED
A1151	11-24	105H	CONTROLLED TEMPERATURE TEST FACILITIES	PILE TECH.		(200,000)										SCOPE BEING DETERMINED

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PROJECT ENGINEERING DIVISIONS
MID-MONTHLY STATUS REPORT
200 AREA PROJECTS

DATE FEBRUARY 15, 19 51

HW-20438 DEL

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

ENG REQ NO	DATE RECEIVED	BLDG OR AREA	DESCRIPTION OF WORK	SPONSORING DIVISION	PROJECT NO.	ESTIMATED COST	ENGINEERING STATUS PER CENT COMPLETE	PROJECT DATE	APPROPRIATION REQUEST DATE	APPROVED A & B COMMITTEE	ROUTED TO GOVERNMENT	DIRECTIVE DATE	AUTHORIZATION RECEIVED	WORK RELEASE	FIELD WORK PER CENT COMPLETE	REMARKS
2469	12-30	200	UNDERGROUND GEOLOGICAL & HYDROLOGICAL INVESTIGATION PROGRAM INCLUDING TEST WELLS & OTHER FACILITIES	H.I.	C-326 REV.2	36,800		5-25-50	5-25	6-13	6-14	MOD.2 11-2	11-10	ADD.3 1-26-51		NO PROGRESS
2460	12-23	221TB	EQUIPMENT FOR DISSOLVER OFF-GAS FILTRATION PART II	S	C-337 REV.	79,000		12-14-49	12-13	12-20	12-23	MOD.3 1-29-51	1-31	ADD.2 2-7		APPROVAL GRANTED TO REDUCE PROJ. FROM $158,000 TO $79,000
2540	7-19	200E	HOT SEMIWORKS COMPLETE PLANS & SPECS. PARTS I & II	SEP. TECH.	C-349	150,000		2-1-50	2-8	2-8	2-15	3-9	3-16	3-24		DESIGN COMPLETE
2541	7-19	200E	HOT SEMIWORKS PART III	SEP. TECH.	C-349	2,540,000		5-31-50	5-31	6-13	6-14	MOD.4 12-18	12-20	ADD.4 11-28		PREP. OF SITE IN PROGRESS
2542	7-19	200E	HOT SEMIWORKS PART IV	SEP. TECH.	C-349	645,000		1-8-51	1-8	1-9	1-9	MOD.5 2-6	2-6	ADD.5 2-12		AWAITING AUTHORIZATION
2513	8-20	234-5	AUXILIARY HOOD ENCLOSURE FOR PART I, BLDG. 234	S	C-366	49,000		2-20-50	3-6	3-21	3-22	4-11	4-14	4-26		WORK PROGRESSING
2491	5-13	200W	EVAPORATION FACILITIES FOR WASTE SOLUTIONS (200W)	S	C-369 REV.	489,000		6-23-50	6-23	7-11	7-12	8-18	8-24	9-1		WORK PROGRESSING
2492	5-13	221TB	IODINE REMOVAL FACILITIES FOR DISSOLVER OFF-GAS (200EW)	S	C-378	128,000		3-9-50	3-9	3-31	4-12	MOD.1 1-29-51	1-31	ADD.1 2-7		APPROVAL GRANTED TO REDUCE PROJ. FROM $149,000 TO $128,000
2540	5-11	234-5	ADDITIONAL UNIT TO SUPPLEMENT THE OPERATION OF HOOD #25, BLDG. 235	S	C-398	25,500		6-1-50	6-1	6-17	6-28	MOD.1 1-5-51	1-12	ADD.1 1-23		AWAITING ACCEPTANCE REPORT
2544	6-2	221TB	CONDUCTIVITY METERS FOR CELL DRAINS, BLDG. 221 T&B	S	C-397	21,700		7-12-50	7-12	8-9	8-10	8-28	8-31	9-5		WORK PROGRESSING
2543	6-1	231	EXPERIMENTAL COATING HOOD, BLDG. 231, 200W AREA — AUTHORIZED EST. ENTIRE COST	SEP. TECH.	C-398	53,000 (94,000)		2-7-51	2-7	2-9	2-9					NEW PROJECT PROPOSAL PREPARED
2546	7-28	221TB	SETTLING TANKS FOR SECTION 5 WASTES, BLDGS. 221-B AND T	S	C-415	35,000		10-23-50	10-23	11-28	11-28	12-11	12-14	12-29		WORK BEING SCHEDULED
2552	10-25	234	SKULL RECOVERY FACILITIES FOR BLDG. 234-5	S	C-422	44,300		12-1-50	12-20	1-30-51	1-31					PROJECT PROPOSAL ROUTED FOR APPROVAL
2554	11-3	241B	ADDITIONAL WASTE EVAPORATION FACILITIES, 200 EAST AREA — AUTHORIZED EST. ENTIRE COST	S	C-423	150,000 (500,000)		1-9-51	1-9	1-9	2-14					DESIGN WORK PROGRESSING
2556	12-23	2220	OFFICE AND STORAGE ANNEX TO BLDG. 2220	H.I.	M-755	9,700		10-26-49	10-26	11-22	11-25	12-7	12-7	2-21-50		PROJECT COMPLETED 11-30-50 COMPL. NOTICE ISSUED 1-23-51
2520	7-18	234-5	LOADING FACILITIES FOR RECYCLED MATERIAL, BLDG. 234 — AUTHORIZED ENTIRE COST	S	M-802	19,000 29,026		4-24-50	4-24	5-9	5-10	6-5	6-5	7-14		WORK STOPPED PENDING SUBMISSION OF PROJECT PROPOSAL
2570	1-15	200W	CONSOLIDATED MAINTENANCE SHOPS, 200W — DESIGN ENTIRE COST	MAINT.	M-813	15,000 (310,000)		9-12-50	9-12	9-12	9-12	10-19	10-26	M-813 11-13		DESIGN WORK PROGRESSING
2571	1-7	200W	ANIMAL EXPOSURE CHAMBER	H.I.		(45,000)										HELD UP PENDING INFORMATION FROM H.I. DIVISION
2537	1-25	200W	200W BADGE HOUSE ADDITION	SEC.		(30,000)										PROJECT IN PREPARATION
2503	7-22	234-5	DUST LEVEL FLOOR COVERING AND SAFETY SHOWERS	S		(150,000)										DESIGNS POSTPONED BY S-DIVISION
2547	8-15	235	PROJECT FOR COATING UNIT HOOD #26	S		(25,000)										PROJECT PROPOSAL BEING PREPARED
2562	11-17	234-5	DESIGN OXIDATION & FLUORINATION EQUIPMENT HOOD #8	S		(25,000)										DESIGN IN PROGRESS
2565	1-8	234-5	PREPARE PROJECT FOR LIRA GAS DETECTOR	S		(25,000)										PROJECT PROPOSAL ROUTED FOR APPROVAL

COMBINED TOTAL OF AUTHORIZED AND PENDING 200 AREA WORK $5,477,126

DECLASSIFIED

PROJECT ENGINEERING DIVISIONS
MID-MONTH STATUS REPORT
300 AREA PROJECTS

DECLASSIFIED

DATE FEBRUARY 15, 19 51

HW-20438 DEL

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

ENG REQ. NO.	DATE RECEIVED	BLDG. OR AREA	DESCRIPTION OF WORK	SPONSORING DIVISION	PROJECT NO.	ESTIMATED COST	ENGINEERING STATUS PER CENT COMPLETE	PROJECT DATE	APPROPRIATION REQUEST DATE	APPROVED A & B COMMITTEE	ROUTED TO GOVERNMENT	DIRECTIVE DATE	AUTHORIZATION RECEIVED	WORK RELEASE	FIELD WORK PER CENT COMPLETE	REMARKS
A3061	8-14	313-314	IMPROVED VENTILATION - BLDGS. 313-314	P.	C-330	200,000		12-8-49	12-8	12-28	12-18	MOD.2 11-10-50	11-17	ADD.7 12-13		INVESTIG. WORK ON BAG FILTER RESUMED. DESIGN PROGRESSING
A3064	2-9	314	ENGINEERING DESIGN FOR ROLLING MILL	P.	C-339	60,000		5-23-49	5-23	5-27	6-1	12-13	12-23	12-23		PROJECT TERMINATED REPORT TO BE SUBMITTED APRIL 1951
A3028	11-14	300	NEW INSTRUMENT MAINTENANCE AND DEVELOPMENT BUILDING 3717-B	INST.	C-377 REV.2	154,000		4-26-50	3-25	4-28	5-10	6-6	6-8	6-19		SUBCONTRACT WORK PROGRESSING
E432	1-11	300	PRIMARY ELECTRIC POWER LINES FOR HANFORD WORKS LABORATORY	ELECT.	C-404	39,000		8-24-50	8-24	9-12	9-12	10-11	10-26	12-12		DESIGN PROGRESSING WORK BEING SCHEDULED
A3086	6-28	RIVER.	RIVERLAND ELEVATED WATER TANK	TRAN.	C-409	46,000		10-2-50	10-2	10-30	10-31	11-28	12-4	12-20		INVITATION TO BID FORWARDED
E434	1-13	300	EXPERIMENTAL INDUCTION HEATING FACILITIES BUILDING 3732	PILE TECH.	C-419 REV.	52,800		11-28-50	12-26	1-18-51	1-18					PROJECT REWRITTEN
A510R	10-10	3701	300 AREA BADGE HOUSE ADDITION	SERV.		14,500		12-14-48	12-10	12-14	12-31	1-3-50	1-6			INFORMAL REQUEST TO BE CANCELLED
A510R	10-10	3701	URANIUM DETECTORS, 300 AREA BADGE HOUSE	SERV.		19,400		9-8-50	9-8							INFORMAL REQUEST NOT APPROVED
A548	8-29	300	SOLVENT STORAGE FACILITIES - BLDG. 3706	TECH. SERV.		(60,000)										AWAITING INFORMATION FROM TECHNICAL DIVISION
A582	6-9	300	MFG. DIVISION ADMINISTRATION BUILDING	ALL MFG.		140,000										PROJECT IN PREPARATION
A595	10-20	622	METEOROLOGY TOWER ELEVATOR	M.I.		(100,000)										FURTHER CONTACTS TO BE MADE WITH OTIS ELEVATOR COMPANY
A600	10-20	300	SOLVENT STUDIES BUILDING	SEP. TECH.		(25,000)										PRELIMINARY DESIGNS STARTED
A603	10-27	300	METAL FABRICATION BLDG. 3730 (ADDITION)	PILE TECH.		(200,000)										WORK CANCELLED PER REQUEST OF TECH. DIV.
E454	2-9	300	300 AREA UNDERGROUND POWER DIST.	ELECT.		50,000										PROJECT BEING WRITTEN
A3063	7-21	313	SEGREGATION OF FLUORIDE SLUDGE	P.		(40,000)										DESIGNS HELD PENDING FURTHER DECISIONS ON WORK TO BE DONE
A3093	10-9	305	305 BLDG. MODIFICATION AND TEST BLOCK	PILE TECH.		150,000										DESIGN HELD PENDING DECISION ON WORK TO BE PERFORMED

COMBINED TOTAL OF AUTHORIZED AND PENDING 300 AREA WORK $1,350,700

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PROJECT ENGINEERING DIVISIONS
MID-MONTHLY STATUS REPORT
GENERAL PLANT PROJECTS

DATE FEBRUARY 15, 19 51

HW-20438 DEL

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

ENG REQ NO	DATE RECEIVED	BLDG OR AREA	DESCRIPTION OF WORK	SPONSORING DIVISION	PROJECT NO	ESTIMATED COST	ENGINEERING STATUS PER CENT COMPLETE	PROJECT DATE	APPROPRIATION REQUEST DATE	APPROVED A & B COMMITTEE	ROUTED TO GOVERNMENT	DIRECTIVE DATE	AUTHORIZATION RECEIVED	WORK RELEASE	FIELD WORK PER CENT COMPLETE	REMARKS
A452	2-17	ALL	INSTALLATION OF OVERALL PLANT TELEPHONE FACILITIES	ELECT.	C-276	1,548,600		9-8-48	7-13	9-8	9-9	10-3	10-6	10-6		AWAITING CONSTRUCTION COMPLETION NOTICE
990	6-28	ALL	INSTALLATION OF NEW SECURITY FENCES - ALL AREAS	SERV.	C-291	424,000		8-31-48	9-9	9-9	9-15	MOD.4 10-19-50	10-25	ADD.6 11-2		SMALL AMOUNT OF WORK PROGRESSING
2460	3-15	ALL	H.I. OPERATIONAL DIVISION SURVEY INSTRUMENTS	H.I.	C-333	85,000		3-30-49	4-1	4-1	4-1	MOD.4 10-3-50	10-4	ADD.5 10-16		PROJECT COMPLETED 1-15-51 COMPL. NOTICE ISSUED 2-7-51
E406	5-16	1100	ADDITIONS TO RICHLAND ELECT. DISTRIBUTION SYSTEM	ELECT.	C-341 REV.	155,000		5-29-49	5-29	6-6	6-16	MOD.2 12-15-50	12-19	ADD.3 1-4-51		WORK PROGRESSING
A543	7-14	HANF.	ARSENAL BLDG., FIRE PROTECTION & SANITARY FACILITIES PATROL PISTOL RANGE	SERV.	C-360	(54,000)										PROJECT BEING RE-ESTIMATED NEW PROPOSAL TO BE SUBMITTED
A563	12-22	ALL	METEOROLOGICAL FIELD STATIONS	H.I.	C-371	30,800		3-25-50	3-25	11-11	4-12	5-9	5-11	ADD.1 12-21		INST. OUT FOR PURCHASE
E435	2-10	1100	ELECTRICITY METERING - COMMUNITY OF RICHLAND	ELECT.	C-380 REV.	331,000		6-15-50	6-15	6-26	6-27	MOD.1 10-11	10-16	10-18		WORK BEING SCHEDULED
E426	11-11	ALL	SALVAGE AND RECOVERY OF TELEPHONE CABLE AND EXCHANGE EQUIPMENT (WRITE PROJECT)	ELECT.	C-402 REV.	33,000		8-21-50	8-21	10-30	11-2	12-11	12-14	12-29		WORK PROGRESSING
A557	11-11	ALL	NEW FENCES FOR DISTRIBUTION AND 230 KV SUBSTATIONS (PART I)	ELECT.	C-403	40,000		8-19-50	8-19	10-2	10-3	10-20	10-25	11-7		PART II TO BE SUBMITTED ON 7-1-51
E455	2-9	700-1100	AIR RAID WARNING SYSTEM RICHLAND - N. RICHLAND — AUTHORIZED EST. ENTIRE COST	C.D.	C-432	40,000 (60,000)		2-8-51	2-8	2-8	2-9	2-12	2-12			DESIGN IN PROGRESS
A562	11-1	3000	CENTRAL STORES WAREHOUSE IN 3000 AREA — PRELIM. ENGRG. EST. ENTIRE COST	STORES	M-770 C-390	17,000 (1,200,000)		7-11-50	7-11	7-11	7-11	8-1	8-1	M-770 8-16		DESIGN SCOPING COMPLETE. DESIGN PROJECT PROP. AWAITING APPROVAL
A565	1-16	1100	NEW BIO-ASSAY LABORATORY — ENGRG. DESIGN EST. ENTIRE COST	H.I.	M-771	14,000 (216,000)		9-22-50	9-22	9-26	9-27	10-6	10-13	M-771 10-18		DESIGN IN PROGRESS
A558	11-11	500	TRANSFORMER & CIRCUIT BREAKER OIL REPROCESSING FACILITIES	ELECT.	M-805	13,300		6-13-50	6-13	6-13	6-14	7-11	7-11	8-14		AWAITING DELIVERY OF PURIFYING UNIT
A480R	5-25	3000	CONSOLIDATION OF TRANSPORTATION FACILITIES — PRELIM. ENGRG. EST. ENTIRE COST	TRAN.	M-811 C-284-R	19,000 (2,300,000)		8-8-50	8-8	8-8	8-8	8-16	8-16	M-811 8-28		DESIGN SCOPING COMPLETED. PROJ. SUBMITTED TO TRANSPORTATION DIV.
A560	11-11	1100	RELOCATION OF RICHLAND LINE CREW HEADQUARTERS	ELECT.		(30,000)										AWAITING INFORMATION FROM ELECTRICAL DIVISION
A601	10-25	ALL	PORTABLE METEOROLOGICAL MAST	H.I.		(90,000)										ESTIMATE RECEIVED PROJECT IN PREPARATION

COMBINED TOTAL OF AUTHORIZED AND PENDING GENERAL PLANT AREA WORK $6,545,700

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MONTHLY REPORT FOR FEBRUARY 1951
ENGINEERING & CONTROL DIVISION

I. Responsibility

There was no significant change in the responsibility of the Engineering and Control Division during the month. However, as of March 1 1951, the division becomes a part of the Plant Engineering Division within the Engineering and Construction Divisions.

II. Achievements

A summary of the major or significant activities of the division is presented in the following:

A. Industrial Engineering Activities

100 Areas - "P" Division Studies

Work was completed on a recommended standard method for pile charge-discharge operation for uranium metal. It is believed that this improved method will be of considerable value to the "P" Division. Studies underlying the new method indicated that time reduction may be effected by increasing front face crew from 3 men to 4 men but that significant improvements are not obtained by increasing front face crew from 4 men to 5 men.

Approval was received from "P" Division to test the proposed new tongs for rapid identification of P-10 slugs during pickup operation. Construction of a model of the new tongs was begun in the maintenance shop.

200 Areas - 234-5 Building

Efforts were directed toward development of additional time study data on the R. G. Line in order to establish more precisely previously reported preliminary figures on crew requirements.

A study of considerable significance was launched to establish rate balances and formalize actual material flow quantities in all phases of the R. G. Line. This information is required as part of the long range improvement program in the 234-5 building.

Study of Hood 8 furnaces was undertaken to determine actual furnace outage time due to maintenance, causes for furnace failure, and establishment of amount of outage time which may be recoverable as production time if suitable improvements can be made.

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300 Area

Engineering was completed on study to determine equipment and manpower requirements associated with proposed 100% inspection of all canned slugs by the dilatometer. It appears that the total installed cost of this equipment will be about $60,000. One to two operators will be required to operate the unit at full plant capacity.

Work was initiated on increasing production of roller-turner lathes by modifications to machining methods. This work is also directed toward improvement in scrap production aspects of the machining operation.

Development of mechanical canning facilities to minimize the effect of the human element on the operation was expedited during the month. Personnel were drawn from the 100,200 and 700 groups and assigned to this program in late February.

Emphasis was increased on development of automatic welding facilities. Personnel were drawn from the 700 Area group and assigned to this problem.

700 Area Studies

Report on "Engineering Activities in the Manufacturing Divisions" was presented to the American Society for Engineering Education in Richland on February 9.

B. Project Construction and Installation

Project C-172 - Dismantling Equipment Demineralizing and Deaerator Plant.

Removal of the deaerator vessels in the 100-D Area was started by the lump sum subcontractor and by the end of the month eight vessels had been removed. Subcontractor has developed a well organized crew and is now making rapid progress.

C-341, Additions to Electrical Distribution, Village of Richland

Bids were opened and a lump sum contract for $33,995 was awarded for the construction of electrical distribution and feeder lines in Richland. Contract was awarded to the Moscow Electrical Company of Moscow, Idaho.

C-349 - Hot Semiworks

Authorization to proceed with the construction was received. The lump sum contract for $2,473,000 for construction was awarded to

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the L. H. Hoffman Company of Portland, Oregon, who had submitted the low bid at the bid opening on January 4, 1951. Contract documents were executed and a notice to proceed was issued to the subcontractor February 28, 1951.

C-369 - Evaporation Facilities for Waste Solutions, 200-W

All major vessels were received and placed in the evaporator building during the month. Completion of the plant for test operation on May 1 1951, is now virtually assured.

C-399 - P-10-C & D

The analytical room on the second floor, the metal line and recycling hood, cask hoist and process gas supply system were completed and turned over to the Pile Technology Division. Completion of the vital power supply system was accomplished. The revisions to line 3, which are being done by the Plant Utilities and Maintenance Divisions, will be completed in early March. With the exception of the fire alarm system and walkways all work in the 1703-B office building was finished.

C-404 - Primary Electric Power Lines, HW Lab. Area

Expediting action on procurement of switch gear has resulted in scheduled delivery in time to energize the first circuit about August 1, 1951, and second circuit before October 1, 1951, the desired use dates.

C-409 - Riverland Elevated Water Tank

Bid assemblies were mailed to prospective bidders inviting lump sum bids for the design and construction of the elevated water tank and appurtenances. The bid opening is scheduled for March 29, 1951.

C-423 - Additional Waste Evaporation Facilities, 200-E Area

Expediting action has been taken toward material procurement in order that beneficial use may be obtained by September 1, 1951. Purchasing is being instructed to place fabrication orders for best possible delivery dates.

M-822 - Water Lines & Electric Service, Army Areas

Water and electric services to the three base camps, 100-D, 100-H and 200-W have been completed ready for service, ahead of the Army contractor's requirement.

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III. Financial Statement

Expenditures of the division for the first seven months of the fiscal year 1951 were $12,460 less than the budget. For the three month period ending April 30, 1951 forecasted expenditures total $161,262, indicating an underrun of budgeted funds amounting to $14,311 for the first ten months of the fiscal year. This underrun of budgeted funds results primarily from a less than anticipated increase in the number of employees in the division.

IV. Personnel Experience

There was a net increase of five employees in the division during February. The number of exempt personnel increased from 50 to 52 and the non-exempt force increased from 35 to 38, resulting in a total of 90 employees at the end of the month. The personnel changes comprise two newly hired employees, four transfers into the division and one termination. Two of the rotational trainees, who had been assigned to the division, were transferred to the division as technical graduates. At the end of the month there were two rotational trainees working in the division.

The Hanford-101 Area for civil defense and disaster evacuation formulated a basic program with recommendations for the central committee action.

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MONTHLY REPORT FOR FEBRUARY 1951
DESIGN DIVISION

I. Responsibilities

The responsibilities and assignments of the Division were not changed during February 1951, but effective March 1st will be transferred to the new divisional organization setup as a result of Organization Announcement No. A-61.

II. Achievements

A. Division Experience

1. Output Statistics

Nine Project Proposals were transmitted to sponsoring divisions for approval in final form. Three of these have already been approved by the A&B Committee and sent to the A.E.C. Five additional writeups are out for divisional approvals in rough draft form.

The 80 projects presently active may be subdivided as follows:

47	Authorized Projects
3	Projects Awaiting Approvals
30	Project Items in Preparation
80	

2. Division Activities

A summary of important items of design work now in progress is as follows (listed by areas):

100 AREAS

C-424 - Water Quality Experimental Program

General agreements on the requirements for the Flow Laboratory phase of Water Quality Experiments have been reached and detailed designs and drawings are being prepared for field fabrication as rapidly as manpower will permit. Complete agreement for the [redacted]pile phase of this program is expected within the month from the other divisions concerned. Detailed drawings of this phase will be prepared as rapidly as policy decisions are made.

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M-832 - Ball Third Safety System

Recent radiation tests performed on the 105-D Ball Third Safety mockup have determined that good shielding characteristics are not a function of ball filled flutes. Tests have indicated that adequate shielding will be possible without the flutes full of balls and the design criteria will be altered to provide for the release gates at the top of the unit. The engineering aspects of the vacuum ball recovery equipment and the automatic ball dumping system are being investigated.

M-713 - Flexible Vertical Rods

The test model of the super flexible rod was being prepared for installation in vertical hole #20 at the 105 D pile building in March.

C-399 - P-10-D Program

Preparation of the project is well advanced. At the present time close attention is being directed toward functioning tests which are being conducted to evaluate actual equipment performance. Design alterations are being made for any items where the need is justified.

C-411 - P-10-X J-Slug Handling Facilities

Evaluation of the use of 105-H facilities, with suitable minor alterations, is complete and all aspects of the proposal appear sound on basis of present information, and detailed design is in progress. A letter project is in preparation requesting Atomic Energy Commission approval for the use of H Area facilities. The present high spot estimate of cost indicates the required funds to be substantially less than the amount already approved under this project for the work originally proposed at 212-N.

C-412 - P-10-X Extraction Facilities

Rescoping of the 108-B installation has progressed well, and at the present time the only major question remaining is the status of hot metallurgical facilities for studies on furnace pots. Detailed design is in progress and advance material ordering is being organized. In connection with the procurement problems some material ordered prior to the recent change in plans (February 1951) will allow rapid progress in the field

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work since this material will be available soon after the designs are complete.

A letter project is being prepared outlining the change in scope and changing the sponsorship for the work from the "P" Division to the Technical Divisions. Authorization of construction funds is also being requested.

200 AREAS

C-337 and C-378 - Dissolver Off Gas Filter and Silver Nitrate Reactor

The fourth and last of the operating units has been installed, and a fifth unit has been authorized for service in cell mockup and jumper fabrication, as well as a spare unit.

Information from S and Separations Technology Divisions indicates that the units are operating at over 99.9% efficiency and that iodine contamination in the surrounding areas has been decreased by more than one half in the past month.

A further benefit is possible of realization in that it now appears that weather restrictions on dissolving operations may be drastically relaxed if not entirely eliminated in view of the elimination of particulate contamination and iodine from the stack gas.

C-369 and C-423 - Evaporation Facilities, 200 Areas

The evaporator vessel has been received and is installed in Building 242-T. The project for the 200 East Area is awaiting authorization, with $150,000 already authorized for advanced ordering of material.

C-398 - Experimental Coating Hood, Building 234-5

Designs for the experimental coating hood have been completed and the project proposal was approved by the A.E.C. during the past month.

ER: 2547 - Coating Unit for Hood 26, Building 235

Design work has been completed and the project proposal will be routed for approval during the month of March.

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300 AREA

C-330 - Increased Ventilation, 313 & 314 Buildings

The oxide burning and recovery equipment has received major attention during the month. Crucible burnout tests have been conducted in the out-gassing furnace with complete satisfaction. Acceptable methods of oxide recovery have been reduced to an 8" rotary kiln and a nitric acid digesting system. The nitric acid system appears most favorable at this time, but further investigations will be made to determine the economic aspects affecting this in other plants.

GENERAL

M-771 - Bio-Assay Laboratory

The project proposal for construction of this laboratory is being submitted to the March A&B Committee meeting. Final design and specifications for lump sum bids are essentially complete.

M-770 - Central Stores Warehouse

This revised project proposal was submitted and passed by the A&B Committee. It is now awaiting authorization of design funds by the A.E.C. Current estimated cost of this phase of the work is $58,000, with the entire project estimated at $1,200,000.

M-811 - Consolidation of Transportation Facilities

This project proposal and design scoping has been completed, and funds for final design will be requested in the March A&B Committee meeting. A scale model of the Transportation Shop and the area development plan is available for use by General Electric and the Atomic Energy Commission management in reviewing this project proposal and scoping.

ER: A-622 - 200-W Area Badge House Addition

Design for the construction of this 40' x 8' addition is essentially complete and informal request will be submitted to the March A&B Committee meeting. In order to expedite the construction of this facility, it is proposed to negotiate a lump sum subcontract in the near future.

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ELECTRICAL

C-404 - Primary Electrical Power Lines for Hanford Works Laboratory Area

Design for this project is essentially complete, and material ordering has been started. It is anticipated that one of the feeders will be run through the central part of the 300 Area underground. Construction power has been provided by temporary line extension.

C-380 - Electricity Metering - Village of Richland

Design work for this project is essentially complete, but action on the subcontract phase has been deferred temporarily by management.

C-432 - Air Raid Warning System, Richland - N.Richland

Warning equipment is now on the plant. Design of towers, etc. is in progress.

ER: E-453 - Intercommunication System, Building 234-5

This project provides for installation of a 100 line Dial Exchange for local service within the building. Exchange equipment is available on the plant, and an informal request is now in preparation.

ER: E-454 - Extension of 300 Area Underground Electric Power Distribution System

Project proposal is essentially complete. Design is progressing satisfactorily.

ER: E-456 - Additional Equipment Richland Telephone Exchange

Project proposal awaiting decision of A.E.C. and telephone section regarding scope.

C-419 - Induction Heating - Building 3732

Project proposal has been approved and specifications for the induction equipment have been forwarded to Purchasing. Design is essentially complete.

B. Improvements

No inventions or discoveries were reported during the month as patent writeups.

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III. Financial Statements

Costs are running within the budget, and the I.M.E. liquidation rate of 60 per cent was found to be very close to the proper figure for January and February. However, under the new organizational setup, it has not yet been determined how our March budgetary picture will be affected.

IV. Personnel Experience

A. Organization Changes

Organization changes were made effective at the end of February and are, therefore, not listed in this report.

B. Force Change

The Design Division started the month with 124 people and ended the period with 130. There were 2 terminations, 4 transfers from the division, and 12 new weekly personnel were added. The Employment Division is still endeavoring to engage additional draftsmen and designers.

C. Safety Experience

There were no major or sub-major injuries and but one minor injury reported.

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TECHNICAL DIVISIONS

February 1951

3/9/51

SUMMARY

Pile Technology Division

Investigations were conducted of the technical feasibility of various improvements considered for incorporation in the "C" Pile. These include an increased water annulus, use of enriched uranium, increased cooling water flow and pressure, an increased number of process tubes, shielding effectiveness, and control requirements.

Emphasis was continued on changes in pile control rods, poison columns, and special loadings so as to maintain or increase uniformity of radial flattening thereby obtaining maximum pile power levels.

Experimental and theoretical critical mass studies for chemical separations and 235 Building proceeded normally.

Exponential pile experiments for lattice design of new piles were continued although little information will be available for improvements in the "C" Pile.

Programs are being planned and equipment designed and constructed for studies of the quality, quantity, and pressure required for pile cooling water to enable increased pile outputs.

Additional information of the chemical reaction between graphite and carbon dioxide under pile operating conditions confirms that this is a major consideration limiting pile power levels. Fabrication of equipment for experiments directed towards finding methods of overcoming this limitation is well under way.

The program of studies of irradiation damage to graphite proceeded normally.

Studies were continued of the metallurgical properties produced by rolling and swaging uranium under various conditions and of methods of testing uranium to determine stability under pile irradiations.

Examinations of ruptured slugs were made in the radio-metallurgy building. Improved methods of canning inspection, to eliminate slugs which might rupture at high power levels in the piles, were investigated.

Cold break-in tests of the metal tritium extraction line have shown no major difficulties.

Long range programs of tritium extraction development were cancelled as a result of revised A.E.C. plans. All development and construction is now directed towards efficient recovery of tritium from the present charge in H Pile.

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Separations Technology Division

Production testing of the removal of iodine from metal solution during dissolving by air sparging is being continued, with widely varying preliminary results. Production testing of lowered bismuth concentration in the Extraction step has progressed to a 45% reduction in bismuth weight and to a 10% decrease in the process solution volumes with satisfactory results to date. The first batch of Purification supernatants from Bldg. 234-5 has been recycled to Bldg. 224 for recovery. Thirty batches of plutonium oxalate have been successfully hydrofluorinated directly without intermediate oxidation in Bldg. 234-5. The use of a higher (1000°C) holding temperature in the Casting operation has resulted in ca. 30% reduction in skull weights. New dies designed to correct present dimensional difficulties were placed in service in the Pressing operation at month end.

In Redox and TBP process development, Technical Manual preparation has continued to 60% completion of the Redox Manual and 11% completion of the TBP Manual. Full operation of the Demonstration Unit (for Redox) and Scale-Up Unit (for TBP) was resumed for purposes of training "S" Division operations personnel during the month. The first group of 20 supervisors and 20 operators is now in training. A program of testing large-diameter pulse columns for assistance to ORNL Purex process design was initiated during the month. Engineering development studies are continuing on Production Plant pumps, feed scavenging, and materials of construction. Authorization of the additional funds required for constructio of the Hot Semi-Works was received from the AEC and the Bureau of the Budget by February 12 and the lump sum construction contract was awarded to the recent low bidder, the L. H. Hoffman Company of Portland, Oregon.

In the research laboratory, studies have been continued on the use of mercury to hold iodine in Dissolver solution, the dissolution of slag and crucibles from 234-5 Reduction and subsequent plutonium recovery by solvent extraction methods, and the adsorption characteristics of Hanford soils relative to aged first cycle supernatants. Several methods for Redox coupling to metal production are under current study. New data have been obtained for plutonium distribution ratios in Redox systems, as well as for solubilities of process reagents in stripping or extracting solutions.

In the 234-5 process development laboratory, additional studies have been carried out on methods of introducing Chemical 70-58 into the RM Line, improving the dissolution time for skull recovery, reduction of plutonium trifluoride, evaluation of the number of peroxide cycles required for isolation and purification of plutonium, and the substitution of sulphur for iodine as the booster in the Reduction step. Noticeable improvement in the quality of core assembly production was observed in inspection operations during the month.

The fourth and last Silver Reactor-Fiberglas filter assembly was installed in Cell 3-5R at B Plant during the month. All four units are operating satisfactorily. Further experimental studies are under way to determine whether or not the formation of ammonium nitrate is possible within the off-gas filter units.

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Technical Services Division

Mass spectrometer development studies were continued in support of the P-10 Project. The Leeds & Northrup emission spectrometer was tested with process samples, and in the tritium concentration range over which calibration data were available gave results in good agreement with mass spectrometer results.

Several new techniques and modified analytical methods were tested and found to yield encouraging results. These included an adsorption procedure for separation of TBP from aqueous metal recovery process streams prior to analysis by infrared techniques, the use of an aqueous-alcohol medium in place of an aqueous one to effect a much more sensitive method for detecting the endpoint in the determination of acid in uranium-containing Redox streams, and the determination of Ca in the presence of plutonium by a Versene method. As a preliminary step to increasing the sensitivity of spectrographic analysis of uranium, a method has been demonstrated for preparing extremely pure uranium for reference standards purposes.

A Fairstein alpha energy analyzer has been assembled and tested, and final tests of the procedure to be employed with the spontaneous fission counter are in progress. Although many improvements of technique and instrument operation are desirable, the two instruments are developed to the point of allowing plutonium isotope determinations on process streams.

A number of economies have been effected in the Analytical Service Section, including more effective use of applied materials, reduction of plant sampling frequencies, and introduction of revised equipment and methods. Procedures are being worked out for the recovery of plutonium in accumulated analytical wastes. Analysis of chemical assay/radio assay values obtained on final 231 Bldg. solutions has indicated the currently accepted isotope correction ratios to be too high, and a new isotope correction chart is being prepared. The system of reporting the precision of analytical control data is being changed, whereby statistical evaluations for customer divisions will consider only data actually used in computing reported analyses.

A Part 2 of Project C-381, requesting the allocation of $4,350,700 for construction of the Radiochemistry Bldg., was approved by the A & B Committee and forwarded to the AEC. This estimated construction cost was based on 50% completion of the final design. Project Proposal C-421-R, covering design and construction of the rescoped Library & Files Bldg., also was approved by the A & B Committee and forwarded to the AEC. An allocation of $574,000 is being requested for this reduced scope building.

Good progress was made on the preparation of a Part 2 of Project C-406, covering prompt completion of the Mechanical Development Bldg. for Technical Shops and Design Group occupancy, as required by the Project C-431 need for Bldg. 101 by September 15, 1951.

Sketches of the new Works Laboratory Area Badge House, to be located at the south side of the new area, and the adjacent new parking area, were submitted to the D & C Divisions and accepted as the basis for final design. A separate project proposal covering the necessary 300 Area Power House enlargement was prepared by the Power Division. Funds for this work will be provided largely from those budgeted for the new Laboratory Area.

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Work authorities were issued by the D & C Divisions authorizing the procurement of installed laboratory equipment for the Pile Technology Building. Comments and approvals of the mechanical equipment check prints for the Radiometallurgy Bldg., and of the preliminary prints for the structure of this building, were transmitted to the D & C Divisions for forwarding to the architect-engineer.

The Equipment Design Group has accelerated its development of multicurie cell manipulators and operating accessories in preparation for their fabrication and use in the new Redox Laboratory (Bldg. 222-S). Purchased accessories, including a 900-lb. lead glass viewer panel, began to arrive at Bldg. 101 (Hanford) where they are being assembled in connection with the wooden mock-ups of these high-level cells. Contact Engineer liaison with the field engineering of this new building increased markedly, with this construction project about 90% complete.

Renewed interest in the quality of virgin uranium metal supplied to Hanford Works has led to intensified statistical study of the results from billet egg analysis, both chemical and functional. Efforts were directed toward preparation of statistics on this subject for a meeting at the Mallinckrodt Chemical Works, St. Louis, on February 27 and 28. The necessary statistical studies have been considerably simplified by the use of IBM methods of tabulation and computation.

During the past six weeks the computing laboratory has been operating near estimated top capacity of the Card Programmed Electronic Calculator, with little lost time due to shut down. As this new laboratory demonstrates its ability to handle complex computing at high speed, requests for computing services are increasing. The backlog of problems has mounted correspondingly, and additional equipment has been requisitioned. Means for utilizing present equipment on a two-shift basis are under consideration.

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March 9, 1951

PILE TECHNOLOGY DIVISION

FEBRUARY, 1951

VISITORS AND BUSINESS REPORTS

C. D. Carroll, R. H. Koehler, and H. W. Bousman, General Engineering and Consulting Laboratory, were here February 1 and 2 for P-10 consultation.

Robert L. Cummerow, Knolls Atomic Power Laboratory, was here February 2 through 5 for discussion on thermal conductivity experiment.

I. O. Winsch, Argonne National Laboratory, was here February 5 through 9 for P-10 consultation.

L. H. Duff, Knolls Atomic Power Laboratory, was here February 5 through 17 for P-10 consultation.

D. H. Marquis and James E. Brown, Jr., General Engineering and Consulting Laboratory, were here February 6 through 10 for P-10 consultation.

R. O. Bolt, J. G. Carroll, and L. J. Dantonio, N.E.P.A. Division, Oak Ridge National Laboratory, were here February 12 through 26 for discussion on the removal of irradiated apparatus.

H. Hurwitz, Knolls Atomic Power Laboratory, was here February 26 through 28 regarding the KAPL assistance to Hanford program.

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James Moyer, Knolls Atomic Power Laboratory, was here February 26 through 28 to consult on the spectrographic methods for P-10 production analysis.

J. A. Ayres, Knolls Atomic Power Laboratory, was here February 28 to confer on chemistry problems.

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

W. K. Alexander visited Crucible Steel Corporation on February 19 to discuss boron stainless steel; Universal Ball Corporation on February 20 to discuss boron steel balls; U. S. Engineering Corporation on February 21 to inspect ball counting machines; Brookhaven National Laboratory on February 21 to inspect the 3X facility; Norton Abrasive Corporation on February 22 to discuss sintered balls; Knolls Atomic Power Laboratory on February 23 to discuss boron steel; and the General Engineering and Consulting Laboratory on February 23 to discuss metal detecting equipment.

J. H. Bach visited M.I.T. on February 12 for metallurgical consultation on double crystal x-ray spectrometer; Knolls Atomic Power Laboratory on February 13 and 14 for metallurgical consultation on double crystal x-ray spectrometer; and he attended the A.C.A. Meeting on February 15 through 17.

L. P. Bupp visited Carnegie Institute of Technology and Pennsylvania State College on February 27 and 28 on a recruiting trip.

E. A. Eschbach visited the General Engineering and Consulting Laboratory on February 12 and 13 for P-10 consultation, and Knolls Atomic Power Laboratory on February 14 through 16 for P-10 consultation.

J. O. Erkman visited Knolls Atomic Power Laboratory on February 14 through 16 regarding the Hanford Experimental Program.

W. M. Harty visited the General Engineering and Consulting Laboratory on February 12 and 13 for P-10 consultation; Knolls Atomic Power Laboratory on February 14 through 16 for P-10 consultation; and Los Alamos National Laboratory on February 18 through 20 for P-10 consultation.

W. T. Kattner visited the Mallinckrodt Chemical Work on February 27 and 28 to attend a meeting on quality and specifications of metal and to inspect the plant and discuss operating methods.

A. R. Matheson visited the General Engineering and Consulting Laboratory on February 12 and 13 for P-10 consultation and Knolls Atomic Power Laboratory on February 14 through 16 for P-10 consultation.

G. E. McCullough visited Brookhaven National Laboratory on February 12 and 13 for technical consultation on graphite, and Knolls Atomic Power Laboratory on February 14 through 16 for a materials testing program. He also visited the University of Washington on February 26 and 27 on a recruiting trip.

E. B. Montgomery visited Mallinckrodt Chemical Works on February 26 through 28 to attend a meeting on quality and specifications of metal and to inspect the plant and discuss operating methods.

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P. H. Reinker visited Brookhaven National Laboratory on February 12 and 13 for technical consultation on graphite and Oak Ridge National Laboratory on February 14 and 15 for a N.E.P.A. ceramic conference.

W. L. Schalliol visited the General Engineering and Consulting Laboratory on February 12 and 13 for P-10 consultation; Knolls Atomic Power Laboratory on February 14 through 16 for P-10 consultation; and Los Alamos National Laboratory on February 18 through 20 for P-10 consultation.

D. F. Snoeberger visited Knolls Atomic Power Laboratory on February 14 through 18 for the Hanford experimental program, and Brookhaven National Laboratory on February 19 for discussions of experimental equipment.

W. K. Woods visited the General Engineering and Consulting Laboratory on February 12 and 13 for P-10 consultation; Knolls Atomic Power Laboratory on February 14 through 16 for P-10 consultation; and Los Alamos National Laboratory on February 18 through 20 for P-10 consultation.

H. F. Zuhr visited the General Engineering and Consulting Laboratory on February 12 and 13 for P-10 consultation, and Los Alamos National Laboratory on February 18 through 20 for P-10 consultation.

ORGANIZATION AND PERSONNEL

	January	February
Physics Section	50	52
Engineering Section	58	63
Metallurgy Section	39	38
P-10 Project	51	53
Administrative	4	5
	202	211

A steno-typist, awaiting a Q clearance in the 700 Area, and a physicist were hired for the Physics Section. A steno-typist transferred from the Physics Section to the Engineering Section, and a laboratory assistant transferred from P-10, temporarily, to the Physics Section.

In the Engineering Section, an engineer, a laboratory assistant, and a general clerk were hired. Four technical graduates on the Rotational Training Program transferred in and a steno-typist transferred in from the Physics Section. An engineer transferred to the P-10 Project and a general clerk and an engineer, on loan for one year from Argonne National Laboratory, terminated.

A metallurgist transferred to Separations Technology from the Metallurgy Section.

Two technical graduates on the Rotational Training Program transferred in to the P-10 Project. An engineer transferred in from the Engineering Section. laboratory assistant transferred to the Physics Section temporarily.

In the Administrative Section, a general clerk transferred in from Office Services.

PHYSICS

Area Physics Work

The number of effective central tubes underwent changes at all of the production piles during the month. The most noticeable increase was at the DR Pile where higher reactivity was effectively utilized to produce a more flattened neutron distribution. A large discharge of irradiated metal at the D Pile produced a substantial reactivity loss and a corresponding decrease in the number of effective tubes. Minor increases were experienced at the B and F Piles and a minor decrease at the H Pile. In the table that follows the number of effective central tubes is given for the beginning and end of the month. The value shown for H Pile for the beginning of the month differs from that reported last month since a revised value has been used for the water flow rate in the most productive tube.

	January 31	February 26
B Pile	1361	1380
D Pile	1331	1298
DR Pile	1168	1214
F Pile	1404	1424
H Pile	1447	1426

The reactivity changes during the early operation of the H Pile offer a set of data for study of long term reactivity changes in plutonium producing piles. More accurate data were available from H Pile than from any of the previous piles and analysis of this data was less complicated due to the absence of any reactivity changes from burnout of impurities in the graphite. Study was carried out with the aid of the IBM installation operated by the Statistics Group of the Technical Services Division. The results confirm, and establish the accuracy of, reactivity gains obtained from observation when metal is discharged. A detailed report will be issued in the near future.

The automatic IBM punch at the DR Pile is ready for routine operation and a manual has been prepared for the use of the P Division operators who will operate this equipment in routine work.

In the determination of the control requirements for a safety rod system the reactivity behavior of a dry, hot pile is of considerable importance. Graphite reactivity coefficient measurements previously reported have indicated that a dry pile has a smaller coefficient than a pile with cooling water in the tubes. Since these measurements were made in loadings of different sizes it was not possible to attribute the change uniquely to an effect of the cooling water. Theoretical calculations have now been made which indicate that the coefficient of the dry pile should be smaller than that of a pile of the same size containing cooling water.

Control requirements for the ball 3X system were reviewed and recommendations made to the P Division contact engineer on the number of holes to be equipped with this device and the speed of operation required.

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Tritium Production

The power distribution in the H-10 tubes has been altered by a new control rod arrangement so that the peak activity now comes near the front end of the tube and is less pronounced than the former peak at the rear end. Activity measurements in tubes away from control rods show a symmetrical front-to-rear power distribution.

A target slug was found to be swollen to such an extent as to restrict water flow in one of the H-10 tubes and it was necessary to shut down the pile and take special measures for its removal. At month end the cause of the swelling had not as yet been determined.

Arrangements were made with the IBM group for the calculation of future production schedules for the H-10 load.

Information was furnished to the Accountability Section on the burnout of U^{235} in H-10 fuel slugs.

Critical Mass of Plutonium

The effect of bismuth on the critical mass of plutonium solutions has been determined by adding successive amounts of bismuth nitrate to the solutions. The critical mass increases substantially as more bismuth nitrate is added. The effect differs from that obtained by the addition of nitrate alone in a complicated fashion which is not as yet completely understood. Five critical assemblies were made during the month for the purpose of studying the bismuth action.

Four additional critical assemblies were made using plutonium produced at a level of 55 MWD per ton and with varying amounts of nitrate. It has been established that the critical mass increases by approximately 100 grams when the exposure level is increased from 55 MWD per ton to 600 MWD per ton. This data has been analyzed to obtain a value of 900 ± 200 barns for the capture cross section of Pu^{240}. Further analysis of the data is in progress.

Information was furnished to representatives of the General Engineering and Consulting Laboratory on permissible amounts of plutonium at various positions in the automatic line being designed for the 235 building.

C Pile Design

Several calculations have been carried out to supply the working committee and the scope committee with information on various design changes being considered for incorporation in the C Pile design.

The data available from the Brookhaven National Laboratory on heavy aggregate concrete shielding were compared with similar data on the present Hanford shield. and a recommendation made of the thickness of heavy aggregate shield required.

Studies were made of the reactivity loss and the consequent power loss which would be experienced in event that an increased thickness water annulus were used in the new pile. The use of enriched uranium to increase the production of new piles and also existing piles was investigated. This work was continuing at month end.

The reactivity and production gains which would be achieved by adding additional tubes to the pile was calculated. Since the overall dimensions of the graphite stack are fixed, this addition necessarily implies a reduction in the thickness of the reflector. Under these conditions it was found that the addition of one more row of tubes around the outside of the pile would result in approximately 10% increase in production and a gain of 60 ih in reactivity. The damage rate in the first layer of masonite in the biological shield would increase by a factor of approximately three.

Exponential Experiments

The effect of fast neutrons from the artificial sources used in these experiments is being studied to determine appropriate corrections which must be made in order to determine the reactivity of a lattice by the exponential pile method.

A study has been made of the total neutron cross section of graphite by integrating the curves giving this cross section as a function of the neutron energy. The total cross section in the temperature range from 20°C to 400°C was found to be 4.70 ± .03 barns. When this value is used in conjunction with the measured diffusion length in a solid stack of purified graphite, the capture cross section of the graphite turns out to be 3.88 ± .09 millibarns. This is believed to be the most accurate value obtained to date for the capture cross section of purified graphite.

Shielding

Measurements have been carried out on the neutron attenuation of the thermal shield and a portion of the biological shield using various materials as neutron detectors. In this way the distribution of neutrons of various energies can be determined since each material is sensitive to neutrons of a particular energy group. Analysis of the experimental data was in progress at the end of the month.

Special Request Program

A total of 419 P-10-A slugs and 24 other special requests were charged during the month while 317 P-10-A slugs and 222 other special requests were discharged. At month end 1, 150 special requests were on hand awaiting charging.

Non-routine work on the special requests program during the month included the loading of five samples of Krypton into a special shipping cask for shipment to Argonne National Laboratory. Previously irradiated and highly radioactive samples of steel were loaded into a special cask for bubble testing. None of these samples, supplied by the Argonne National Laboratory, successfully passed the bubble test. Measurements were carried out on the radioactivity of some 300 individual tantalum pellets in order to determine the activation achieved when 400 pounds of this material were irradiated for the Chemical Warfare Service.

Considerable effort was expended in decontaminating the B test hole facility at H Pile. Contamination of the facility, reported last month, was the result of a leaky special request casing supplied by a requesting laboratory.

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Test Pile

Some improvement has been experienced in the precision of Test Pile results since the pile was recalibrated some months ago. Improvement in the precision is indicated by a reduction in the variation obtained in day to day tests of the difference between two groups of standard slugs.

Special work requests carried out during the month were as follows:

1. A determination was made of the absorption cross section of a piece of standard process tube.

2. Reactivity of uranium slugs of non-standard dimensions was determined. These slugs had been fabricated for the DuPont Company.

3. Tests were made of the purity of aluminum samples to be used in fabricating slug cans.

4. A measurement was made of the reactivity loss produced by a heating element which was to be used in a production pile.

5. The reactivity loss produced by newly fabricated, neutron detecting counters was determined.

6. The reactivity of 16 bars of graphite produced by the Great Lakes Graphite Company was determined at the request of the Hanford Office of the Atomic Energy Commission. These bars were all of high density and high purity. Dih results on all of them were in excess of 1.00. For comparison, purified graphite used in the DR and H Piles was regarded as of high quality when its dih exceeded 0.90.

Xenon Cross Section Measurement

The equipment for collecting fission product xenon has been set up in the laboratory and provisions have been made for admitting measured amounts of stable xenon, krypton, and helium so that the ability of the system to separate xenon from the other gases may be tested.

A temporary catcher for the neutron beam to be used with the neutron spectrometer has been constructed and installed at the DR Pile. This catcher will be adequate for only the lowest intensity beam available for spectrometer use. Project Engineering has been requested to prepare a project proposal covering the construction of a larger neutron catcher which will be adequate for all beam intensities and also for carrying out certain improvements to the neutron spectrometer as now constructed.

Instrument Development

Machine work on the magnetic spectrometer is proceeding and a sample of radioactive cesium has been received from Oak Ridge to be used in testing this instrument. The cesium produces electrons of a single energy which will be quite useful in calibrating the instrument.

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Reactivity

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

	B Pile	D Pile	DR Pile	F Pile	H Pile
In rods	81 ih	70 ih	121 ih	74 ih	107 ih
In xenon poison	581	565	666	614	711
In Special Requests					
In lead-cadmium columns	0	0	0	0	0
In bismuth	100	94	15	109	0
In plant assistance	10	36	0	17	5
In dummy columns	10	17	11	27	25
In overall coefficient	-296	-362	-158	-365	-155
Total cold, clean reactivity	874	795	908	811	733

The D Pile lost 25 ih of reactivity during the month. This loss was produced by an exceptionally large discharge of irradiated metal. The DR Pile gained 53 ih during the month as a result of the accumulation of plutonium. Changes at the other three piles were minor. F Pile gained 8 ih, B pile lost 2 ih and H Pile lost 16 ih.

ENGINEERING

Pile Power Levels

Data obtained from recently installed graphite monitoring thermocouples in the B, D, and F Piles have permitted the operation of these units at higher power levels with more of the graphite closer to the 380°C maximum calculated temperature permitted at this time. The central portion of the graphite in the .240 zone of the piles generally contains graphite of higher heat conductivity than the graphite in the outer areas of this zone. These additional thermocouples allow calculations of maximum graphite temperatures to be made with extrapolations over smaller areas of more uniform graphite than was possible previously. The Physics Section's continued improvement in flattening and the P Division's optimum operation of the control rods has provided more uniform heat distribution. These improvements have permitted significant power level increases at all piles totalling more than six percent. Tabulated below are the maximum power levels obtained during the months of January and February.

Pile	January	February
B	395	415
D	370	385
DR	463	484
F	320	380
H	485	500
Total	2,033	2,164

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Purge of DR Pile During Operation

The DR Pile was successfully purged by the P Division while the pile was operating at a power level of 250 MW. There were no adverse effects noted in reactivity, pile control, or system activity. The purge of 30 minute duration using 100 ppm of diatomaceous earth resulted in an increased flow of 1,100 gpm and allowed an immediate increase in power level of 9 MW.

Ruptured Slugs

Two ruptured slugs occurred at the H Pile during February. One slug was an untransformed slug canned by the lead dip process and was being exposed experimentally; the other was a P-10 target slug.

The following table lists pertinent data regarding the seven standard uranium slugs which have failed to date:

Tube	Date	Time in Reactor	Tube Power KW	Slug Power KW	Water Temp. at Slug °C	Location in Tube
1165 F	6-4-48	17	156	3.46	28	33
0569 B	11-25-48	50	226	3.13	49	52
1572 D	6-23-50	38	196	4.26	38	38
1476 DR	11-29-50	29	360	7.90	37	30
3288 H	12-6-50	183	301	6.67	38	34
3188 DR	1-11-51	108	381	8.37	44	37
3270 H	1-31-51	239	353	5.20	53	53

It was observed that generally the failures occurred at the end cap portion of the slug either due to poor welding or bonding. The wide variance in power generation indicates that power generation may not be the controlling factor causing slug ruptures.

Ball Third Safety Development

The necessity of having balls in the fluted step plug for shielding purposes is being examined. Balls were first removed from one flute, with no appreciable change in the radiation level, and then they were taken from the other. A complete evaluation of the radiation around the test step plug has not been finished but preliminary readings indicate that the shielding is still equal to that provided by the original step plugs in the pile. This will make design of the new step plug much less complicated.

Visits were made during the month to several ball manufacturing concerns. From information obtained, it would appear that two and possibly three different types of balls can be successfully fabricated. It is indicated that when orders need to be placed, several suppliers will be able to furnish suitable balls.

Heat Transfer Program

A program for heat transfer work is being set up by the Engineering Development Group. Problems associated with heat transfer and removal from the piles will be treated in this program.

Work has been started on the three following problems in connection with boiling in process tubes:

1. Further refinement of boiling limits used in the piles.

2. Determination of the feasibility of using I.B.M. machines to make pressure drop calculations for the boiling regions.

3. Determination of practicability of increasing the permissible tube power by changing the tube outlet fittings.

Water Study Program

The water quality experimental program is proceeding along the course outlined last month. Construction of the experimental facilities will begin soon.

An evaluation is being made in conjunction with the Plant Assistance Group and the Power Division of the possibility of increasing header pressures by replacing the secondary pump casings with ones of greater strength.

Magnesium Front Dummies

A total of fourteen tubes have been loaded with magnesium front dummies. Five more tubes are scheduled for loading at the next shutdown of the B Pile. These dummies are being loaded to determine if the use of magnesium dummies will have any adverse effects on the process tubes.

Irradiation Effects on Graphite - RDA #TP - 10

The gradient of damage along a graphite stringer removed from the C test hole of the B Pile was determined with respect to crystal expansion and thermal conductivity. These samples extended from the far side shield to the center of the pile, and are representative of filler layer graphite. Similar studies made on A test hole keyway bar samples from the D Pile were reported previously. In general, the gradients show the same features, but significant differences were produced by the lower total exposure and lower exposures at higher CO_2 concentrations in the B Pile. The maximum damage exists at a position about one foot in from the reflector. The damage at the inside edge of the reflector corresponds to that in the center of the pile, but falls rapidly to zero at the center of the reflector. The maximum damage obtained from the B Pile data is about two-thirds that from the D Pile, which corresponds approximately to their relative exposures. This indicates that the carbon dioxide has not been effective in annealing the graphite in the region near the reflector. The correspondence of damage on samples positioned in the central regions of the two piles may indicate that the recovery produced by nuclear annealing is essentially completed under the present operating conditions. This residual damage amounts to about three to four percent crystal expansion, and a thermal conductivity decrease by a factor of fourteen.

The x-ray line diffraction shape indicated that the central filler zone layer graphite had been damaged to a high degree and then annealed to the present condition. Annealing studies indicated the existing damage is confined to regions which anneal thermally at temperatures above 650°C.

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Total stored energy measurements on the D Pile samples confirmed the gradients previously reported on the basis of crystal expansion and thermal conductivity. At a position one foot from the reflector a value of 289 cal/gm was obtained compared to a value of 131 cal/gm for a position in the central zone.

A total stored energy of only 15 cal/gm was obtained on a simulated filler block sample from the H Pile, which indicates that the central zone filler graphite has sustained very little radiation damage.

The controlled temperature exposure of graphite samples is proceeding satisfactorily. Present exposure temperatures are 215°, 164°, 143°, and 112°C. These represent some drift from the values initially reported shortly after loading.

Interferometer measurements of physical expansion annealing of irradiated graphite have indicated that no rapid annealing occurs in the region of maximum stored energy release. Several runs on irradiated samples showed an annealing which results in slight transverse expansion, followed by contraction at higher temperatures. This behavior contrasts markedly with that observed for stored energy and thermal conductivity.

In-pile measurements of the reaction rate of oxygen and purified carbon dioxide with previously unirradiated graphite at a nominal temperature of 400°C gave results higher in all cases than those previously reported. The present exposure was about 213 days. A weight loss in oxygen corresponding to about 60 percent per 1,000 days was obtained, and about 1.6 percent weight loss per 1,000 days in carbon dioxide. This rate in carbon dioxide is sufficiently high to present a serious burnout problem in view of the loss in mechanical strength and drop in thermal conductivity with progressive oxidation. The present graphite temperature limitation of 380°C will be maintained until additional burnout results are obtained with gases containing carbon monoxide. It is anticipated that the reaction rate will be significantly reduced in the presence of carbon monoxide in pile atmospheres.

Samples of several types of graphite are being exposed in pile atmosphere at ambient temperatures in a bare tube channel at the F Pile. These samples are located in various temperature zones of the channel so that indications of rate of burnout and transport may be obtained. One set of samples exposed at temperatures up to 370°C have been removed and the second set operating at a maximum temperature of 400°C is scheduled for removal during the first part of April, 1951.

Surface area adsorption-desorption measurement on a powdered sample of highly damaged graphite indicate that this sample has a predominance of pores having a 250-300Å radius, with a second group of pores having a 10-30Å radius.

Progress on the study of mechanical properties, pile annealing, and special graphite exposures has been satisfactory. Work has proceeded on the development of the mechanical core borer, and a program has been outlined covering the entire field of pile graphite monitoring.

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

The influence of Hanford pile flux on the behavior of fuel elements in contact with sodium is being determined. Slug R-5 containing U^{235} in a stainless steel jacketed titanium pin had been irradiated in tube 0865-F for 228 days at the end of February. Slug R-1 containing a stainless steel pin filled with U^{235} charged as uranium dioxide was opened and the capsule casked for shipment to KAPL.

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

The behavior of water fuel, and other material is being determined under conditions simulating those of the Westinghouse Pile as nearly as is possible in the Hanford Piles. Operation during February was routine with recirculating water

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

A test is under way to determine the influence of neutron flux on the calibration of a differential transformer and on the electrical resistivity and dimensional stability of zirconium. A test slug which had been irradiated since October 22, 1950, in tube 0965-B was discharged on February 7, and a second slug charged at that time. This second test slug is performing acceptably.

Creep of Aluminum (PT 105-381-P)

An experiment is being performed to determine the influence of Hanford flux on the creep rate of annealed 2S aluminum. The results of the third run indicate that the second-stage creep rate in the pile is 60 percent lower than that of unirradiated aluminum at a temperature of 450°C ± 3°C and 375 psi stress. The differential controller maintained the furnace within ±5°C of pile temperature. The LVDT output from the pile specimen appeared to be proper up to about 100 hours.

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

An attempt was made to determine the creep rate of KAPL pins subjected to internal pressure, heat, and pile irradiation. The first test slug was charged January 24, into tube 1077-F. A gas leak at the pile made inspection and adjustment of instruments difficult, so that the startup of the test was postponed to February 12. The temperature control of the test slug was found to be inadequate and required excessive attention to the instruments. Consequently, the creep specimen temperature could not be maintained. The test slug heater burned out on February 20. A new slug is to be charged in March.

Creep of Zirconium (Weight Load - ANLM-159)

A dead-weight loaded test is proposed to determine the effect of irradiation on the creep properties of zirconium. The full-sized mock-up of the W through hole at the H Pile has been designed and the wooden structures 90 percent completed. The slug assembly is being redesigned by ANL to minimize the serious heat distribution problems which had arisen with previous designs. An extensometer for measuring the elongation of the specimen will also be incorporated.

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Thermal Conductivity of Graphite

It is proposed that an experimental slug be inserted in a process tube to determine continuously the effect of irradiation on the thermal conductivity of graphite. KAPL is designing a slug assembly approximately 3 1/2 inches long which includes a graphite cylinder with an axial heater through the center. A second heater, in a phosphor-bronze helix, surrounds the graphite. Thermocouples and power leads will be brought through aluminum tubing to a modified L-Z nozzle.

Controlled Temperature Facility

Preliminary designs and cost estimates were completed by the Project Engineering Division for a facility to provide a controlled temperature, adjustable within the range of 100°C to 450°C, in a pile test hole for 50 to 100 samples, any one to be on call. The facility was discussed at the February 15 and 16, 1951, meeting of the Materials Testing Program Committee at KAPL. In consideration of the $450,000 cost estimate, construction time of approximately one year and testing schedules of the various AEC Sites, there was little interest in further development at this time. A report has been requested from the Project Engineering Division to cover the work done.

Decomposition of Lubricants (ORNL-140)

Duplicate 5 gm samples of three natural and three synthetic oils, contained in aluminum cans, were irradiated in F Pile for fourteen hours. The cans were opened with a special apparatus furnished by the California Research Laboratory. The slugs were punctured and gaseous decomposition products collected for spectrographic analysis. If complete decomposition had taken place, releasing all hydrogen, pressure readings as high as 3,000 psi would have been obtained in the gas sampling system. No sample yielded a pressure above 20 psi after irradiation. The oils were drawn off and saved for physical tests which will be conducted at the California Research Laboratories.

METALLURGY

Uranium Billet Casting and Rod Fabrication

The February rolled rod shipment consisted of four cars of rods produced from MCW and Hanford billets. The quality was decidedly inferior to that of previous shipments from the same source, especially with respect to straightness and splayed or otherwise unsound ends. All rods were sheared which further detracts from the sound slug yield. Dimensionally the rods were of average quality.

Pile test results on bare uranium slugs selected from four lots of rods rolled in October, 1950, showed an average reactivity of -0.046 dih as compared to an average of -0.138 for the eight preceding lots tested. To what causes this improvement may be attributed is not known.

Some samples of uranium which were reduced 5, 10 and 20 percent by swaging at Schenectady were examined for surface quality. The portions reduced 10 and 20 percent were equal to the samples of swaged and drawn rod received previously from the New York AEC. Five percent reduction was insufficient to produce proper roundness.

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Uranium Canning

Continued tests to determine whether the autoclaving operation is made more rigorous by extending the period of treatment, increasing the steam pressure and temperature, or introducing a thermal cycling treatment, have given inconclusive results. There is some slight evidence that both increased pressure and thermal cycling tend to increase the severity of the test.

Uranium Metallurgy

Results of a pile test (PT-105-330-P) on lead-dipped, untransformed uranium having different degrees of orientation show that for a particular type of orientation the dimensional changes in slugs are directly related to the degree of orientation. The metal used in this test was fabricated at Lockport and had the normal (020) type of orientation. Variation in the degree of orientation was achieved by varying the rolling temperature. Lower rolling temperatures gave a higher degree of preferred orientation and greater length increase in the pile.

Recent data on some uranium rod rolled at Joslyn in Fort Wayne for PT-313-113-M indicates that this metal has a different type of orientation than is present in Lockport rod. The (200) poles tend to lie in the rolling direction in preference to the (020) poles. Since pile instability of uranium appears to be directly related to orientation, this may explain why earlier lead-dipped untransformed metal which was fabricated at Fort Wayne was observed to decrease in length during pile exposure.

Laboratory tests on the metal for PT-313-113-M were completed except for a group of continuously rolled rods recently included in this test. X-ray orientation data on this metal, which was finish rolled at 300 to 500°C after an initial reduction by various methods at higher temperatures, show as expected that the degree of orientation increases as the temperature decreases and as the amount of reduction increases. Material initially gamma extruded was less oriented than material initially rolled or forged at 600°C. Of principal interest were the data on some metal continuously rolled at Fort Wayne.

One inch diameter DuPont uranium rod fabricated at Lockport had an orientation similar to that found in Hanford production rod. Three quarter inch diameter rods fabricated in shaped passes at Allegheny-Ludlum showed an unusually low degree of preferred orientation. The metallographic structure of these rods before and after transformation was normal.

Dilatometry

Tests for the determination of the expansion versus degree of transformation curve for canned slugs were completed and the initial analysis of data has been made. The spread in the degree of transformation for a given expansion was greater than anticipated, being approximately thirty percent. A large portion of this spread was caused by a few slugs, and it is felt that by further refinements in the technique a twenty percent spread should be attained. Thus, the test would accept completely transformed slugs and some slugs which were eighty percent transformed and reject slugs less than eighty percent transformed and a few that were completely transformed.

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Radiometallurgy

One uranium slug located in tube 2562-H failed on February 2. This slug has not been removed from its process tube and is in the 105-H storage basin.

The slug that failed in tube 3188-DR on January 11, has been separated from the process tube and the cap has been examined. The slug will be canned for subsequent examination. The contamination hazards arising from this investigation were the worst we have encountered. During normal operations, contamination has appeared on the vertical surfaces of the transfer area in the 111-B building to a dangerous level. It appears that the uranium corrosion products might be different from previous examinations since this is the first to have a slightly green color, similar to U_3O_8.

A bowed slug from tube 0263-F that was discharged on January 25 was received for examination. The 6000# discharging pressure had defaced the canning data so that the only discernible marks were a 4, 7 and [illegible]. Physical measurements of a plaster of paris replica of the original slug have been made in anticipation of fracturing the slug to determine the degree of transformation into the β phase during canning.

On February 19 an Al-Li target slug failed in process tube 3177-H. Observation revealed three longitudinal breaks in the can wall, and that the cap had been almost completely separated from the can wall. Cream-colored corrosion products can be seen through all openings in the can. The base and the walls of the can are distinctly bulged. A complete examination of the corrosion products, can material, and the target alloy is now under way.

Preliminary prints and design criteria for the Radio-Metallurgy Building, (Building 327), have been supplied by the Architect Engineer for our appraisal.

P-10 Alloy

Consistent blank analyses which are lower than generally observed for the standard P-10 cold lines have been obtained on Metallurgy's modified P-10 line. The use of a permanent extraction tube welded inside a vacuum tight chamber has eliminated the hydrogen diffusion problem; however, solution of hydrogen in the tube produces some variation in the blank when runs evolving variable amounts of hydrogen precede the blank runs.

Analyses to date on materials used or contemplated for use in P-10-A fabrication and extraction indicate that the high purity vacuum melted aluminum and vacuum melted lead contain little hydrogen while the magnesium-aluminum alloy contains approximately 9 cc of hydrogen in a standard size slug.

Tests to determine the melting mechanism of the aluminum-lithium plus lead and the aluminum-lithium plus cadmium plus magnesium systems indicate that either of these systems is feasible for P-10 extraction. No significant corrosion of the Type 347 extraction tube was noted in any of these tests.

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Corrosion

Laboratory work has been completed for the evaluation of T-304 ELC, T-347 CbTa and T-321 as substitutes for T-347 stainless steel except for tests in $BiPO_4$ process solutions. Data available to date indicate that in TBP process streams RAF and Neutralized RAW, T-304 ELC and T-347 CbTa are equal in corrosion resistance to T-347.

Corrosion tests on Stoody #1 and Stoody #6 exposed in synthetic 200 Area waste at 90°C have been completed. There was no apparent attack and corrosion rates of nil were recorded in each case. It should be noted that Stoody #1 and Stoody #6 were incorrectly designated as Stoody #2 and #8 respectively in the January report.

An examination of 624 process slugs in the 105-DR storage area resulted in rejection of 22. Severe corrosion on side walls, end caps, and weld beads accounted for the majority of rejections. Corrosive attack resulted in deep pits (average 0.025 inches, maximum 0.045 inches) on the side walls of the cans. The weld bead on several cans was deeply attacked and was anodic to the end cap and can alloys. A report will be issued shortly.

Special Requests

With the cooperation of the P Division, 150 MR-sized aluminum dummies were canned by the "J" process, for use in corrosion studies. Also, 100 capsule slugs were processed.

Twenty-six Special Request pieces were processed, tested and/or inspected. In addition, three special sealing jobs were completed for other Technical groups.

Miscellaneous

Examination of some failed stainless thermocouple wells used in connection with tube water temperature measurement in H Pile revealed that failure resulted from fatigue. This was produced by a stress raising notch formed by the sealing ferrule and side impingement of process water on the well.

P-10 DEVELOPMENT

Metal Line Developments

Preliminary operation of the metal separation line for educational purposes continued. Several runs thus made were started to determine operational techniques applicable to the "on line" stripping process. Many runs were not of sufficient precision to permit process evaluation. Uncertainty as to the quantity and quality of the feed stock and operational lapses were in general responsible for the unreliability. Installation of the recycle system for the gas used to activate the process Toepler pumps was accomplished without incident. Initial use indicates that one vacuum pump-compressor combination has sufficient capacity to operate all four Toepler pumps on a 30 second cycle. When only one or two Toeplers are on the line, manual reduction of the vacuum capacity appears mandatory. No unforeseen or major difficulties were uncovered during this period of operation in either the separation or recycle systems.

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Calibration of the system volumes has been repeated with precision of 0.1 - 0.5 percent on the major volumes.

Erection of the first extraction furnace and its hood has been completed. Redesign of the cask supports on the furnace has been shown necessary to permit the operation of the cask door after the furnace pot has been lowered. Necessity of additional shielding as a result of this redesign imposes a further complication.

Vacuum testing and electrical testing of the furnace pot outgassing facility has been essentially completed. At present only three furnace pots are available at Hanford. One of these has been undergoing destructive metallurgical tests.

One metal shipping container has been received from Los Alamos. Two additional containers are undergoing minor revisions at Los Alamos. Initial evacuation of the container to one micron on the metal separation line was accomplished in about five hours. The subsequent pressure buildup in the container was approximately five microns per hour. However, the plot of the rate of rise versus time indicated substantial outgassing. No attempt to outgas the container has yet been made. Los Alamos has proposed the substitution of a uranium sorption bed for the present metal gas container. Consideration is being given to this proposal.

A decision has been made to complete the "on line" stripper as designed by the General Engineering Laboratory.

Extraction Developments

Pb Additions

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MgAl Additions

Canned Slug Extractions

Stepped Extractions

Miscellaneous Developments

Acceptance tests of the third revised glass line have been completed. Revision of the fourth glass line to incorporate the best available glass features is under way. To reduce the number of metal transfer systems and the length of time a single metal shipping container is appended to a line, a metal transfer system for one line is being fabricated to transfer product from the line on which it will be located and the adjoining line. The use of concentric pipes between the two glass lines will permit safe transfer of the product.

A survey of precise extraction data comparing the yield of tritium as a function of pile exposure indicates the low neutron cross section of tritium which was also found experimentally in the P-11 Reactor.

The appearance of a swollen and split target slug in the H-10 loading has initiated an extensive investigation by the Metallurgy Section to determine the cause; supporting assistance in this investigation is being supplied by the P-10 Development Group.

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The correlation of results on a sample of tritium obtained from the IDR line showed good agreement (± 0.5 percent) between the buoyancy balance and the mass spectrometer, but the emission spectrometer results were slightly higher (1-2 percent) than the other two determinations.

The KAPL Program was reviewed in a meeting of representatives from both sites, and overall objectives for the investigations of problems pertinent to the H-10 load established.

P-10 OPERATIONS

Extraction Operations

The glass extraction facilities were utilized during the month as follows:

1. Three lines were engaged in extraction research and development.
2. One line was out of service for construction revision.
3. One line was engaged in reprocessing of air contaminated product.

A similar program is planned for March, with operations personnel working on three of the lines, and development personnel operating the remainder of the equipment.

One man, working on line 2, reprocessing air contaminated product, was removed from product work because of excessive tritium body contamination. He was found to be contaminated to approximately 400 μc/l of body fluid. This man has been re-assigned to radiation free work in another area for an extended period pending biological decay of the contaminant.

Project Construction Activity

Construction activities continued on those projects known as P-10-C, P-10-D, and P-10-D part II and are nearing completion.

As a result of Atomic Energy Commission revised plans, the Project scoped as P-10-X, sponsored by the P Division, was cancelled, and responsibility for further necessary construction activity to permit extraction of the H Pile Lithium-Aluminum slugs reverted to the Pile Technology Division.

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Additional construction on a much more modest scale than planned in the P-10-X project by the P Division had been nearly completely scoped by the end of February. This scope will be presented in a separate document. Numerous compromises will be effected to permit installation of adequate facilities by late summer since it is believed that extraction of the H Pile load of P-10-A slugs must begin in August with completion desired by April, 1952.

INVENTIONS

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

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

WK Woods:WRL:jr

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March 9, 1951

SEPARATIONS TECHNOLOGY DIVISION

MONTHLY REPORT
FEBRUARY, 1951

VISITORS AND BUSINESS TRIPS

H. Apkarian and R. E. Koehler from G.E.&C.L. visited the Hanford Works on February 1 and 2 for discussions on the Long Range Bearing Program.

L. A. Matheson, J. J. Grebe, W. H. Beamer, N. Wright, L. R. Drake, F.H. Langell, L. J. Richards, and W. T. Gillespie of the Dow Chemical Corp., T. Pinney of the Austin Co., and D. Persons of the A.E.C. visited here from February 6 through 8 for 234-5 Project discussions.

A. Kirby and A. Ruehle of the Mallinckrodt Chemical Corp., W. Weinrich and J. Delaplaine of the Catalytic Construction Co., T. Runion of the Oak Ridge National Laboratory, S. Brown and N. Sievering of the A.E.C. New York Office, and F. B. Quackenboss of the A.E.C. Washington D.C. Office visited here on February 12 and 13 for consultations on the use of the TBP process for ore refining.

C. V. Ellison, A. C. Jealous, and R. B. Lindauer of the Oak Ridge National Laboratory were here February 19 through 21 for consultations on Hanford assistance to ORNL Purex studies.

E. L. Zebroski, Knolls Atomic Power Laboratory, visited the Hanford Works from February 19 through 23 for consultations on separations processes.

R. E. Burns visited the Oak Ridge National Laboratory and the K-25 Plant from February 5 through 8 for a Waste Processing Committee meeting and consultations on waste treatment and the 234-5 Project.

H. H. Hopkins visited the Argonne National Laboratory on February 19 and 20 for discussions of Redox problems, attended a symposium on equilibrium and rate properties of complex ions at the University of Chicago from February 21 through 23, and visited the General American Transportation Company's East Chicago laboratories for discussion of nickel coating methods.

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ORGANIZATION AND PERSONNEL

Personnel totals are as follows:

	January	February
Administration	2	2
Special Assignment	2	2
Research Section	37	36
Development Section	74	73
Process Section	31	31
	146	144

Research Section: One Chemist was terminated.

Development Section: One Tech. Grad. was transferred from the Technical Services Division, one Chemical Engineer was terminated, and one Steno-Typist C was granted a leave of absence.

Process Section: One Tech. Grad. was added as a new hire, one Metallurgical Engineer was transferred from the Pile Technology Division, and two Tech. Grads. were transferred to the Pile Technology Division.

200 AREAS PLANT ASSISTANCE

Canyon Buildings

Air sparging during metal dissolution to remove iodine from metal solution was tested at B Plant under Production Test 221-B-9. Three runs resulted in scattered efficiencies of 60%, 3%, and 40%. The significance of these data has not been established, however, since air flow was uncertain during the first run and the sparger was turned off before completion of the second run. Additional tests are being made.

Runs have been processed under Production Test 221-B-10 at B Plant with the bismuth concentration in Extraction at 2.5 grams per liter. The Extraction loss, prior to routine reworking, averaged slightly higher for these runs than for runs processed at 3.5 and 4.5 grams per liter. Losses after reworking were not significantly different at the three bismuth concentrations. Losses and decontamination subsequent to Extraction were not adversely affected for runs processed with 2.5 grams of bismuth per liter in Extraction and with the decontamination cycles and Concentration Building process volumes decreased by ten per cent. The test is continuing with process volumes decreased by twenty per cent.

The first cycle by-product precipitation loss for Run T-11-01-B-32 at T Plant was 20%. This was reworked to 8.2% after an initial attempt at recovery was unsuccessful. Additional losses amounting to 0.6% were incurred before the recovered product was combined with runs following. The reason for the high loss could not be determined.

The motor of the extraction centrifuge in Section 7 at T Plant failed during the product cake wash of Run T-11-01-B-51. Essentially complete solution of the cake was effected by using the manometer tube as an air sparger. The centrifuge was replaced.

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Separations Technology Division

Concentration Buildings

No difficulties have been observed in processing the smaller volumes under Production Test 221-B-10. Significant decreases in the lanthanum fluoride product precipitation time cycle are indicated due to the shorter centrifugation times.

Purification and Fabrication Building

Supernatant solutions prepared under Production Test 234-1 and identified as Lot X-10-11-14 were loaded to a Recycle Can for return to the 224 Building on the 23rd of February. This is the first lot of supernatant solutions recycled to the 224 Building.

Sample Can solutions containing 350 ± 50 grams of plutonium per liter of solution were processed routinely beginning February 1 in the 234 Building. Average supernatant loss was 0.0316 grams per liter for February compared with 0.0245 for January, and 0.0311 for December. No difficulties were encountered in processing these dilute P-4 solutions through to buttons, so standard operating procedures may now be written.

Spectrographic analyses on SN-2 solutions were discontinued beginning February 1. Considerable data have been accumulated on past analyses which can be used for future reference.

New analytical procedures for the SN-1 analyses were instituted with Batch X-11-2-70. The new procedures include steps for dissolving solids which frequently occur in the SN-1 samples submitted to the laboratory, and it is believed that the new analyses are more accurate than those in the past. The average loss of plutonium to supernatant solutions analyzed by the new method was 0.0481 grams per liter for Batches X-11-2-70 through X-11-2-97.

Average Dry Chemistry (Hood 8) conversion for February was 93 per cent. Twenty per cent of the runs processed in Hood 8 during the month of February required refluorination. Sixteen per cent of the runs during February were transferred to Reduction (Hood 10) with less than 90 per cent conversion to the tetrafluoride. During December and January, 2 and 2.8 per cent, respectively, of the runs processed required refluorination. Conditions believed to be responsible for the larger number of refluorinations during February are as follows:

1. Steam to the steam tracer for the HF Line between the panel board and Furnace No. 3 was inadvertently left turned off during the fluorination of 5 runs, all of which were less than 90 per cent converted on the first fluorination.

2. The exhaust line to Furnace No. 3 in Hood 8 was found to be plugged during the latter part of the month; 6 of the runs resulting in less than 90 per cent conversions were processed during this period of time.

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3. Several oxalate precipitates were stored during one week end as slurry in open boats in Hood 8. This procedure was adopted by Operations to allow for continued operation of Hoods 5, 6, and 7 during a period of time when Hood 8 was operating at only about 50 per cent efficiency due to furnace repairs. It is believed that absorption of rather large volumes of HF gas from the Hood 8 atmosphere caused a partial fluorination of the oxalate precipitate and resulted in a low calculated per cent conversion.

Production runs have been started in accordance with Production Test 234-4 (Direct Hydrofluorination of Oxalate Precipitates). Thirty batches had been processed in accordance with this production test at month's end. Some difficulties were encountered at first in adjusting the temperature and HF cycles during the early stages of the fluorination, but these were resolved before 25 per cent of the test material had been processed.

Reduction (Hood 10) yields during February averaged 98.2 per cent. Averages for December and January were 98.5 and 98.2 per cent, respectively. A statistical analysis has been made of Hood 10 yields with respect to variables believed to affect these yields. A report will be issued by the Statistics Group in the 300 Area in the near future. The following results have been transmitted verbally by this group:

1. Hood 10 yields vary directly with Hood 8 conversions between conversions of 63 and 100 per cent. (This is the range of conversions in the data used for the statistical study.)

2. Hood 10 yields vary inversely with the amount of plutonium fluoride powder used in Reduction, between 372 and 678 units of powder.

3. Hood 10 yields vary inversely with the amount of recycle turnings charged to Hood 10 between 0 and 294 units of recycle. No correlation was found to exist between Hood 10 yields and the firing time or the maximum temperature reached during Reduction.

The lanthanum content of buttons has been increasing since mid-November. This is coincident with the time that 70-58 was added at the Reduction step. Study is being made of essential materials and 231 Building operations to determine whether or not the increase in lanthanum could be accounted for by changes other than the change in the Reduction step. Conclusions from this study will be reported in a later report.

The average c/q summation for castings produced during the month of January was 0.54. This summation does not include the contribution due to oxygen.

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The new die was placed in Hood 19 during the latter part of February. The dimensional changes that have been made on the new dies resulted from the study of units produced during the last few months. The following changes have been made:

1. The No. 1 - No. 4 plane separation on the No. 111 punch was changed from 6 to 4 mils.

2. The No. 1 - No. 4 plane separation on the No. 112 punch was changed from 0 to 1 mil separation.

3. The No. 2 and No. 3 plane intersection was moved three mils closer to the center line of the punch while retaining the specified angles.

4. The cavity radius was increased 1 mil.

REDOX AND METAL WASTE RECOVERY DEVELOPMENT

Technical Manuals

The writing of the Redox Technical Manual was continued. On February 25, the preparation of this manual was about 60% complete. The following five additional chapters were completed during the month, bringing the total number of chapters completed to date (except for reproduction) to ten:

III. Feed Preparation

VII. Plutonium Concentration

XIII. Tanks

XVIII. Remote Operation and Maintenance

XIV. Hazards Other than Radiation

A small amount of effort was expended on the preparation of the Uranium Recovery Technical Manual. On February 25, the preparation of this manual was about 11% complete.

Process Studies

Work was continued on a survey of the status of "saltless" solvent extraction process development. An economic and technical study of a possible increase in Redox Plant production capacity was conducted jointly with the "S" Division. The survey indicated that a substitution of 3/4-in. Raschig ring packing in all contactors for which 1/2-in. packing is now specified, with the exception of Column IB, will increase the potential product capacity by about a factor of two. The details of this recommendation have been reported in Document HW-20222, "Increase in Redox Capacity (Part I - Increase in Column Packing Size," by R. B. Richards, dated February 6, 1951.

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Redox Solvent Extraction Studies

The 321 Building A and B Cell feed preparation equipment and the Redox first cycle column cascade battery were operated on a continuous basis during this report period. Feed for the first run was carried through the oxidation and permanganate scavenging steps (A-6) followed by $Cr(NO_3)_3$ reduction of MnO_4^- to MnO_2, centrifugation (B-2), and adjustment to 0.2 M acid deficiency at 2 M UNH (B-3).

One-third of the MnO_2 was removed by centrifugation carried out in a 26-inch diameter (5.0-gal. liquid holdup) solid-bowl Bird Centrifuge operating at 1790 rev./min. (1150 x G.) with approximately 2-min. bowl hold-up time.

An attempt to remove MnO_2 fines not removed by centrifugation by filtration through a Type "E" or "F" Micrometallic filter (0.0013 to 0.0008-in. diam. average pore size) was not successful and the feed containing the suspended MnO_2 was pumped to the IA Column. After 1.5 hours of operation, some concentration of solids was evident at the IA Column interface although most of the MnO_2 left with the IAW. Some entrainment of MnO_2 with IAP occurred and the color was also evident in IBP after 1.5 hours. Subsequent Demonstration Unit operations were carried out without the addition of $KMnO_4$ and $Cr(NO_3)_3$ pending installation of a recirculating pump to pump feed from the oxidizer to a new gravity-feed tank for feeding the centrifuge. This will permit operation at bowl hold-up times up to an hour.

TBP Solvent Extraction Studies

During the report period the 321 Building Scale-Up Unit pulse column cascade battery was operated to process "cold" uranium solutions under ORNL #1 Purex flowsheet conditions. A series of four IA-IC cascade runs was carried out to evaluate the "standard cartridge", developed for TBP Waste Metal Recovery columns, under Purex flowsheet conditions.

Under Purex IA conditions in the 5-in. diameter pulse column, operation over a volume velocity range of 500 to 1000 gal./(hr.)(sq.ft.) at frequency (cycles/min.) - amplitude (inches) combinations of 70-1, 70-0.5, and 93-0.75 produced uranium waste losses below 0.025% and H.T.U. values in the range of 1.2 to 1.5 ft. These H.T.U. values are comparable to those obtained in the Waste Metal Recovery RA system.

Under Purex 2B conditions in the 8-in. diameter pulse column, operation over a volume velocity range of 360 to 720 gal./(hr.)(sq.ft.) at a frequency of 85 and an amplitude of 0.5 inch produced waste losses of 4-14% and H.T.U. values of 1.6 to 2.8 ft. Considerable effort will have to be made to improve the performance of this contactor.

321 Building Construction and Maintenance

Major revisions to the Scale-Up equipment to permit continuous RA-RC-RO Column operation in cascade were completed during the period. Installation of the piping and auxiliary equipment necessary to permit distillation of the Scale-Up hydrocarbon wash solvent in the Demonstration Unit still (S-1) was completed.

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A small leak was discovered in the AQ-8 (concentrator) Tank in the Scale-Up tank farm just prior to month end. Although the severity of the leak was not great enough to enforce an immediate shutdown, its repair will be scheduled early in the coming month.

321 Building Operations

Operation of both the Demonstration Unit and the Scale-Up Unit was resumed during the week of February 5, 1951. Initial operation in both units consisted of flushing, leak checking, and functional testing of newly installed equipment. Routine, steady-state operation was established prior to the beginning of the training program on February 19, 1951.

The Demonstration Unit has been operated routinely since mid-month using the Redox production plant flowsheet outlined in the Redox Training Manual. Operation has been uneventful except for troubles initially experienced with incomplete removal of MnO_2 scavenger during the first run, due to insufficient hold-up time in the centrifuge.

Initial operation of the Scale-Up TBP Process equipment included Purex-type runs for the recovery of uranium from ICU solutions remaining from Scale-Up Redox studies. Use will be made of this recovered uranium for all TBP Training runs. Initial performance of the Scale-Up TBP pulse columns in RA-RC-RO cascade was satisfactory. Hydraulic performance of the cascade has been good. No flow control or interface control difficulties have been encountered in the cascade as a result of pulsing both RA and RC Columns while cascading. Planned deviations from optimum flowsheet conditions, for both training and data gathering purposes, have resulted in higher-than-normal uranium losses in the RCW and ROO, and have necessitated additional batch washing of the solvent before re-use.

Preparation of the Redox and TBP Process Training Manual was completed and the document, HW-19791, issued during the period. The training program was started during the period without incident. The "S" Division operators to act as trainers (either former "TS" or "S" operators previously trained in the 321 Building) resumed activities in the 321 Building on February 5, 1951. The first contingent of trainees appeared on February 19.

Equipment Development

Submerged Pump No. 2 has been converted to a test pump for evaluating bearing materials for the Hot Semi-Works. Under conditions simulating the oxidizer in the Redox process (MnO_2 scavenger), the unit has completed a series of tests employing Stellite journals and bearings. Unsatisfactory operation due to seizing and galling resulted. A new bearing of boron carbide to be operated with a Stellite No. 6 journal is being prepared for test.

Peerless 4"-IA, a four-stage deepwell turbine pump, completed a total of 45 days of operation employing simulated neutralized and concentrated RAW at a temperature of 82 ± 2°C. The wear of the Graphitar No. 2 bearings for the 45-day period was 7.1 mils at the upper seal bearing with a minimum wear of 1.6 mils at the lower or foot bearing. Journal wear was slight, varying from 0.4 to 1.7 mils with some 2 to 5 mil score marks.

Johnston 8" Prototype TBP Pump, an eight-stage deepwell turbine pump, was dismantled following completion of running tests reported in the January report. Excessive wear at the lubrication holes drilled radially through the Graphitar bearing wall led to the recommendation that these be eliminated and axially cut lubrication grooves be employed for future production units.

Peerless (P-124) Redox Production Pump, consisting of a single-volute turbine pump, completed a 30-day test at 1750 rev./min. pumping neutral hexone. The operation was smooth and uneventful. Observed wear was nominal and only slight scoring of any surfaces was evident.

Hexone-HNO_3 Proportioning System. Simulated operation tests on the Proportioneer's nitric acid metering pump and the hexone mixing point have been completed. The results of the tests, as they effect equipment design for the Redox Plant, have been summarized and transmitted to the Engineering Divisions.

Materials of Construction

Aluminum Nitrate Tank Liners - Samples of Koroseal and Pioneer Rolling Mills rubber were immersed in 2 per cent $Al(NO_3)_3\ 9H_2O$ - 0.3 per cent HNO_3 solution at 105°F. for 31 days. The $Al(NO_3)_3$ solution was incorporated into IAS and employed in the usual phase disengaging time measurement procedure. The disengaging time was within the same region (18 to 19 seconds) as solutions based upon c.p. $Al(NO_3)_3$.

Duralon 36 - A concrete tub, coated with Duralon 36 and previously exposed to neutralized conc. RAW at 169°F. and RAX, was filled with 3 gal. of hexone at 70-80°F. After 10 days of immersion, no change had occurred in the coating. Hexone was removed and the tub washed and dried. Ten per cent HNO_3 was added. After 10 days, there was no effect on the coating.

Hot Semi-Works

The additional funds requested in Part IV of Project C-349 were authorized by the A.E.C. on February 6, 1951. Notification to proceed was issued on Feb. 12. A lump sum contract to construct the Hot Semi-Works for $2,473,000 has been awarded to the L. H. Hoffman Co. of Portland, Oregon. The schedule has been revised as follows: The Hot Semi-Works shall be ready for use April 1, 1952, and is to be physically completed not later than August 1, 1952.

Installation of the metal waste transfer system trench through the Hot Semi-Works construction area has been completed. The ditch has been back-filled and the area regraded.

Process Chemistry

Redox Waste Solution Properties - A report detailing the freezing point vs. degree of concentration of concentrated and neutralized Redox aqueous wastes per HW-4 and ORNL flowsheets has been drafted to be issued as Document HW-20366.

Equipment for 222-S Building - Specifications for equipment to prepare and treat Dissolver metal solution were given to the Engineering Services Section. Work orders for other special equipment including shielded sampler carriers, manipulators, continuous flow mixer settler unit patterned after the KAPL "Mini" unit, and a batch counter-current extractor were issued.

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SEPARATIONS PROCESS RESEARCH

Iodine in Dissolver Solution

Sparging studies relating iodine removal to acidity indicate an optimum acidity for each oxidation state of iodine studied; namely, 1.0, 0.3, and 0.3 M HNO_3 for iodide, iodine, and iodate, respectively. Variation of UNH concentration appears to have little effect on sparging efficiency.

Study of various phases of the use of mercury to hold iodine in Dissolver solution gave the following results:

1. The presence of mercury in Dissolver solution produces negligible corrosion of stainless steel and has no effect on the dissolving rate of uranium. The mercury does not plate out on the stainless steel or the uranium.

2. Stainless steel has no effect on the ability of mercury to hold iodine in solution.

3. The presence of mercury in expected concentrations in RAF has negligible effect on disengaging times or uranium extraction under RA Column conditions.

4. Iodine, added as iodide, is almost completely removed from RAFS by three successive TBP extractions whether or not mercury is present.

5. In laboratory experiments about 60% of the iodine, added as iodide, was evolved during bismuth phosphate Extraction with mercury present compared to about 90% evolved in the absence of mercury. When the iodine was added as iodate, only about 1% was lost with mercury present. Although the solution was not actually sparged during these experiments, a stream of air was drawn across the liquid surface. Agitation was probably much more vigorous than occurs in the plant.

6. About 20% of the mercury carried on bismuth phosphate in the Extraction step when the Dissolver solution was 10^{-4} M in mercury.

7. Incomplete studies indicate that the iodide to mercury ratio in the complex or compound formed in solution is two in the presence of a large excess of mercury.

Aged First Cycle Supernatants

Studies involving passage of first cycle supernatants through soil columns have been made to determine the capacity of the soil to remove activities from a waste of high gross salt content. Soils used were representative of those underlying cribbing sites in both 200 Areas. These studies showed:

1. Plutonium appeared in the effluent in gradually increasing amounts. About 20% was present in the fifth (last) column-volume of effluent.

2. About one-fourth of the total beta activity appeared in the effluent immediately and remained constant at that value for five column-volumes.

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3. Strontium was virtually completely retained by soil from the East Area but was not adsorbed by West Area soil. Inexplicably, adsorption by West Area soil of radiostrontium from a simulated supernatant was good.

4. Cesium first appeared to an appreciable extent in the third column-volume of effluent. Analytical data with respect to cesium are still somewhat questionable.

5. More than half of the ruthenium was present in the effluent.

Slag and Crucible Dissolution

The first full crucible scale dissolution of slag and crucible has been completed, consisting of a hydrosulfite solution wash followed by complete dissolving in seven successive leaches with 4 M HNO_3. The plutonium content of each leach was considerable, indicating that partial dissolution is not effective on this scale or this particular slag and crucible material.

Filtering of the wash solution and of the silica-containing leaching solutions was slow due to plugging of the filter. However, the plutonium loss in the silica residue was only 0.3%.

Recovery of Plutonium from Slag and Crucible Materials

The solvent extraction recovery of plutonium from the solution prepared above proceeded smoothly. The procedure consisted of extracting with 30% TBP in AMSCO-125 from a 2.6 M $Ca(NO_3)_2$ solution, scrubbing with 1 M $Al(NO_3)_3$, neutralizing and stripping the organic phase with 0.1 M $NH_2OH \cdot HCl$ (or $2NH_2OH \cdot H_2SO_4$) solution. The combined strips contained four grams of plutonium in two liters, representing a 97% recovery. Some interfacial solid was found, but it contained only ca. 0.05% of the total plutonium.

Rapid stripping of plutonium into an aqueous phase having one-tenth the volume of the organic phase requires the partial neutralization of the nitric acid in the organic phase. This neutralization operation can be combined with scrubbing by the use of solid sodium bicarbonate plus 1.0 to 1.75 M $Al(NO_3)_3$.

In assessing the recovery process, it appears that the extraction steps will work, but that leaching may have to be carried out until complete dissolution occurs.

Redox Coupling Studies - Plutonium Peroxide

Two samples of plutonium peroxide have been prepared from AT material (diluted to 10 g Pu/l); one from 5.5 M HNO_3 and one from 5.5 M HNO_3 cut back to 2 M HNO_3 with caustic. Both precipitations were carried out in the presence of 0.02 M $Al(NO_3)_3$ to simulate the final Redox solution after partial evaporation. Spectrographic analyses of these solids show excellent purity with respect to aluminum but indicate undesirable amounts of boron, magnesium, phosphorous and sodium. The high boron content is most likely a result of carrying out the experiments in Purex glass. The other impurities are not expected to interfere with subsequent metal reduction processing.

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Separations Technology Division

Redox Coupling Studies - Plutonium Trifluoride

Precipitations of plutonium trifluoride have been carried out using AT solution diluted to 40 g Pu/l, 1.25 M HNO_3 and in the presence of 0.08 M $Al(NO_3)_3$. Precipitates formed at 25°C. do not settle well; those formed at 60-70°C. settle well but may cause trouble upon being washed with water due to peptization or hydrolysis.

The reduction of plutonium(IV) to plutonium(III) proceeds equally well with hydroxylamine hydrochloride or hydroxylamine sulfate. The reduction is slow at room temperature but proceeds quite rapidly at 70°C.

Literature data indicate that PuF_3 hydrolyzes in HF-free aqueous solution at 70-75°C. and thus suggest the inadvisability of transferring a slurry of PuF_3 into a drying boat with water. The PuF_3 drying experiments have been performed, therefore, by filtering and air drying at room temperature before raising the temperature above 60°C. Weight changes of PuF_3 samples dried slowly up to 100°C. and then heated to 175°C. show that all detectable water is removed at the lower temperature. The dried PuF_3 is, in general, purple to grey in color. Two five-gram preparations of PuF_3 are being held for future metal reduction studies.

Head-End Treatment

Junior Cave experiments are being performed to determine the effect of different gaseous spargants upon the removal of ruthenium from dissolver solution containing 0.078 M $KMnO_4$. Tentatively, it has been found that a 3% ozone spargant (in air) is markedly more efficient than air alone, the ruthenium decontamination factors being ca. 1000 and 100, respectively. Decreasing the ozone content of the air stream from 3% to 2% has no effect upon the ruthenium decontamination.

An investigation of the ruthenium deposition on stainless steel is being continued.

Plutonium(VI) Distribution in Redox

In the course of measuring the temperature dependence of extraction of Pu(VI) and Pu(IV) in the Redox system, the Pu(VI) concentration dependence in the acid-deficient region and a possible photochemical reduction effect suggested by KAPL studies were investigated. Earlier Pu(VI) distribution data (HW-13760) were satisfactorily checked for solutions with a nitric acid concentration of 0 to 0.6 M. For the 0.2 M acid deficient solutions complete coverage of Pu(VI) distribution was made for 0 to 1.0 M UNH and 1.0 to 1.3 M $Al(NO_3)_3$ solutions. Interpolation of the data to correspond to the ORNL #1 flowsheet gave Pu(VI) distribution ratios corresponding to a 0.2% or less plutonium loss in the waste with a maximum HTU of two feet. Abnormal HTU values could be taken care of by a slight increase in $Al(NO_3)_3$ concentration.

The apparent decrease in Pu(VI) distribution caused by exposure to laboratory light was slight for macro plutonium concentrations of 0.2 g Pu/l in 0.2 acid-deficient solutions but was appreciable for concentrations of 0.006 g Pu/l [illegible]

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and 0 to 0.0025 M UNH. In the latter case, 15 minutes' exposure to laboratory light dropped the apparent E_a° of Pu(VI) to ca. 50% of its value in the dark. The effect of light was negligible in neutral to acid solutions. The E_a° of Pu(VI) in 0.2 M acid-deficient solutions when measured in the dark was independent of concentration over the range trace to 0.2 g/l.

Solubility of Aluminum Nitrate in Hexone

The solubility in hexone of aluminum nitrate from either 1.3 or 2.5 M aqueous aluminum nitrate solution containing 0.2 M HNO_3 was measured by direct evaporation and ignition. In either case the residue was less than 0.0001 g Al_2O_3/100 ml hexone, the limit of analytical sensitivity. Assuming aluminum nitrate solubility to be unaffected by plutonium, the aluminum impurity in the Redox IIBP stream, neglecting entrainment, should not exceed 0.003 g Al/g Pu from 400 g/T material.

Solubility of Tributyl Phosphate in Aqueous Solutions

The solubility of TBP in aqueous solutions typical of the Purex and Metal Recovery Processes has been re-evaluated with the aid of radiophosphorus. The equilibrium solubility of TBP from a 15% TBP solution in AMSCO 125-90W was found to be 0.24, 0.17, 0.01, and 0.17 g/l in H_2O, RCU, RAW, and 3 M HNO_3 (RAS), respectively. From a 33% TBP organic phase, corresponding more nearly to Purex type systems, the solubility in the above aqueous solutions was found to be 0.28, 0.19, 0.01, and 0.21 g/l, respectively. These can be compared with the solubility of pure TBP in water which is 0.39 g/l.

During the evaporation of 0.2 M UNH to 2.0 M UNH, added TBP was essentially completely steam-distilled early in the evaporation as would be expected from a consideration of the molecular weight-vapor pressure relations. The concentrate contained no appreciable amount of TBP hydrolysis products.

Studies have also been made of the solubility in water as a function of the concentration of TBP in the organic diluent and as a function of the nitric acid concentration in the aqueous solution. Using as a standard state pure TBP and an approximate molecular weight of 160 for AMSCO, activity coefficients of TBP in AMSCO were found to be 1.2, 1.7, 2.6, 4.6, and 6.6 for mol fractions of TBP of 0.70, 0.44, 0.28, 0.13, and 0.066, respectively. The solubility of pure TBP in nitric acid solutions exhibits a minimum of ca. 0.1 g/l at 9-10 M HNO_3 and a rapid rise to 1.2 g/l in 15 M HNO_3.

Purex Decontamination Studies

To determine the effect of Hanford head-end treatment on subsequent decontamination in the Purex Process, extraction and scrub studies were made on treated and untreated Dissolver solution. Ozonolysis and MnO_2 scavenging had removed 97% or more of the ruthenium, zirconium, and niobium. The treated and untreated feeds were extracted once with 30 volume per cent TBP-AMSCO 125 and scrubbed three times with 3.0 M HNO_3.

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Very promising over-all beta and gamma decontamination factors of 9×10^5 and 1.3×10^6, respectively, were obtained for the treated feed as compared to 1.1×10^5 and 1.4×10^4, respectively, for untreated feed. Most of the activity extracted from the treated feed was cerium. Ozonolysis did not affect the E_a° value for ruthenium.

Experiments are in progress to determine the effect of small amounts of DBP in the extractant on decontamination of treated feed.

234-5 PROCESS DEVELOPMENT

To assist the Design Division in working out a method of delivering Chemical 70-58 in the RM Line, the hold-up of this material in a 1/6-in. i.d. stainless (347) tube was determined with different amounts of purge gas passing through the tube. The objectives of the work were to get reproducible amounts of the chemical delivered, and particularly to have no material remaining in the line that could freeze and plug the line. It was necessary to purge the tube with 600 cc/min. of helium in order to reduce the hold-up of 70-58 from 14 mg/inch to 5.2 mg/inch. The use of this amount of gas in such a small tube was found to agitate a dusty powder as far away as 3 inches. To reduce the hold-up to less than 1 mg/inch required over 3000 cc/min. of purge gas.

A powder which can be dissolved readily in a 16 M HNO_3-0.04 M HF mixture was obtained by the oxidation of Casting skulls with water in a sealed bomb at 200°C. The behavior of the skull material in this regard was very similar to plutonium buttons. The powder obtained by the oxidation of skulls or buttons with steam at 200° was not readily dissolved by the HNO_3-HF mixture. Approximately an eight-fold reduction in the time of dissolution with the boiling acid mixture would be achieved by first treating the skulls at 200°C. with water.

The first trial reduction of a sample of plutonium trifluoride prepared by the low temperature hydrofluorination of plutonium(III) oxalate gave a yield of only 65%. In spite of this low yield, a well-formed button of plutonium was obtained. Additional work will be done in an effort to improve the yield as soon as more small-scale reduction crucibles are received from Los Alamos.

The first draft of a formal report describing all of the work done on the use of plutonium peroxide for the preparation of plutonium tetrafluoride has been prepared.

One and two cycle plutonium peroxide precipitates were made with four washes instead of the three used previously in order to determine whether the soluble impurities can be removed more completely from the precipitate. The peroxides were converted to fluorides which were then reduced to metal. Evaluation of this test will be made when the analytical laboratory data are received. The program for the evaluation of the number of peroxide cycles required for isolation and purification of plutonium has also been retarded until more small-scale crucibles are received from Los Alamos. In the meantime, a program has been initiated to obtain complete analytical data for the redissolved P-2 cake in the 231 Building. These analyses should give an indication of the metal purity that can be expected when the 231 Building P-2 cake is transferred to the 234-5 Building for hydrofluorination and reduction.

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Iodine is used in the present Reduction step to supply auxiliary heat and to lower the melting point and viscosity of the slag. The use of iodine, however, leads to troublesome corrosion of the bomb, the hood, and other equipment. Sulphur was used in a trial reduction as a possible substitute for iodine. Plutonium tetrafluoride prepared by the direct hydrofluorination of plutonium (III) oxalate was reduced with an 85.4% yield based on the fluoride weight. The metal was reported to contain 600 ppm of sulphur. The use of sulphur instead of iodine as a booster for the Reduction step is probably contingent on obtaining a smaller sulphur contamination in the metal.

There was noticeable improvement in the quality of the production during this period as compared with the initial production of the new model during the last period. The distance between corresponding surfaces varied over a narrower range during this period. The matching of pieces to profile gauges, however, has not yet reached the quality achieved in the previous model. Direct measurements showed that the angle of the secondary plane of one component was at the minimum permitted by specifications. The next die punch made will be designed with this item in mind.

A faulty switch in the ionization chamber counter was corrected, and the amplifier and scalar overhauled. A much better operating plateau was obtained from the counting units after this work. Alpha and neutron emissivity tests were also much less erratic after the equipment had been checked.

Customer acceptance of the resolution obtained for the radiography of the latest model was received. It will, therefore, not be necessary to send any more original radiographs to the customer. The radiography facilities were altered so that four items can be radiographed at the same time.

Alterations were made to Rooms 179a and 177 so that they can be used by the Inspection Group. The templates for checking corner radii have been placed into service. A device to handle the neutron source used in the neutron emissivity test has been fabricated. The device operates satisfactorily but will be modified to facilitate the handling of the source.

STACK GAS DISPOSAL

The installation of the fourth Silver Reactor-Fiberglas filter assembly in the 3-5R Cell at B Plant was completed. All four units are operating satisfactorily.

The monitoring equipment in the 221-B pipe gallery has been revised to permit heating of the aliquot of the dissolver off-gas stream drawn through the apparatus. A test filter containing "AA" Fiberglas at a packing density of 1.2 lbs/ft^3 will be placed in the system. The unit will be operated during a metal dissolution, charging, and coating removal. The temperature of the gas stream passing through the test filter will be adjusted to approximate as closely as possible the temperature in the dissolver cell filter. The pressure drop history of the test filter under these conditions will provide direct evidence as to whether the operating temperature of the Dissolver cell filter (approximately 300°F.) will prevent the formation of ammonium nitrate within the filter unit.

Separations Technology Division

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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 January 1 to March 1, 1951, except as listed below. Such persons further advise that, for the period, notebook records, if any, kept in the course of their work have been examined for possible inventions or discoveries.

Inventor	Title
W. A. Burns	Solvent Extraction Apparatus
J. F. Facer and W. L. Lyon	The Direct Hydrofluorination of Pu(III) or Pu(IV) Oxalate. HW-20229, 2/7/51

The above statement also applies for the period November 1-30, 1950, previously incompletely described in Report No. HW-19622.

R H Beaton

R. H. Beaton
Separations Technology Division

Date: 3-1-51

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TECHNICAL SERVICES DIVISION

FEBRUARY 1950

VISITORS & BUSINESS TRIPS

R. B. Fenninger, of the du Pont Company, spent February 5-7 consulting with the Analytical and Engineering Sections concerning analytical methods and laboratory design.

A. J. Williams and R. C. Machler of the Leeds & Northrup Company spent February 26-28 consulting with the Analytical Section on the use and performance of their company's spectrometer.

B. M. Fry, of the A.E.C. Technical Information Service, Washington, D. C., spent February 28 with the 300 and 700 Area Classified Files and the Plant Technical Library.

Business trips of Technical Services Division personnel were as follows:

E. M. Kinderman attended the Fourth Annual Symposium on Modern Methods of Analytical Chemistry which was held at the Louisiana State University on February 1-2.

F. B. Quinlan spent February 5-6 at the Leland S. Rosener Company, San Francisco, supplying information regarding the design and shielding requirements of the Radiometallurgy Bldg.

C. G. Stevenson attended the meeting of the A.E.C.-sponsored Technical Information Panel at Oak Ridge on February 5-7, and consulted with personnel of the A.E.C. Technical Information Service there on February 8. He visited the Kellex Corporation in New York City on February 12, for discussion of plans for the inventory and accountability transfer of their Job 11 classified documents.

A. H. Bushey attended a meeting at KAPL on Feb. 14-17, to discuss P-10 analytical assistance to Hanford.

O. P. Amacker spent February 14 at the Central Washington College of Education and the Wenatchee Junior College recruiting technical personnel. For this same purpose he spent Feb. 15-21 at the following schools: Whitman College, Eastern Oregon College of Education, and the California Institute of Technology.

G. J. Alkire spent February 15-16 at the University of California consulting on the alpha energy analyzer and related equipment.

L. F. Kendall visited the Los Alamos Scientific Laboratory on February 19-21 for the discussion and inspection of spectrochemical methods of analysis.

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J. W. Hall spent February 19-28 recruiting technical personnel at the following schools: Kansas University, Kansas State College of Agriculture & Applied Science, Washington University, and the Missouri School of Mines.

P. M. Thompson spent February 20-22 in Seattle inspecting new IBM computing equipment.

C. A. Bennett, E. W. Rebol, and L. G. Waters attended an A.E.C.-sponsored meeting on uranium metal quality, specifications, and acceptance procedures which was held at the Mallinckrodt Chemical Works in St. Louis on February 27-28.

ORGANIZATION AND PERSONNEL

Effective February 1, the Analytical Section was reorganized as follows:

The analytical control and service groups were given sectional status, under the designation Analytical Service Section. L. M. Knights was appointed Chief Supervisor of this new Section. The analytical research groups also were given sectional status, under the designation Analytical Research Section, with A. H. Bushey as the Section Chief. Both Sections continued under the supervision of F. W. Albaugh, Assistant Division Head (Analytical).

J. W. Hall was appointed Technical Assistant to F. W. Albaugh.

E. W. Rebol was appointed Area Supervisor - 300 Area Control and Special Services in the Analytical Service Section, vice J. W. Hall.

O. P. Amacker was appointed Area Supervisor -200 Area Analytical (Extraction Processes) in the Analytical Service Section.

J. W. Jordan was appointed Area Supervisor - 200 Area Analytical (Precipitation Process) in the Analytical Service Section, vice O. P. Amacker.

D. F. Shepard was appointed Group Head - Methods Control in the Analytical Service Section, reporting to L. M. Knights.

Personnel totals in the several subdivisions are summarized as follows:

	January 31	February 28
Analytical Service Section)	292	244
Analytical Research Section)		43
Engineering Section	75	75
Information Group	72	73
Statistics Group	19	18
Administrative	3	3
Division Totals	461	456

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ANALYTICAL SERVICE

Work Volume Statistics

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

	January		February	
	Samples	Determinations	Samples	Determinations
Process Control - 200	3,532	9,206	4,414	9,843
Process Control - 300	468	1,005	572	1,091
Water Control - 100, 700	712	2,597	895	3,269
Research & Dev. Programs	5,671	9,424	1,391	2,844
Process Reagents	1,593	1,878	2,232	2,568
Essential Materials	176	1,001	206	1,021
Special Samples	1,091	9,188	983	10,823
Stack Gas Filters	1	1	3	5
Naval Reactor Project	40	176	21	122
Totals	13,284	34,476	10,717	31,586

The apparent drop in the service to Research and Development Programs is caused by the discontinuance of the practice of reporting a large number of alpha counting results as independent samples and analyses; only two people are involved in the counting, which is merely the final step in the complete analysis.

100 Areas Water Control

Operations in these laboratories continued on a routine basis.

200 Areas Control

It was decided by representatives of the Statistics Group and the Analytical Service Section that the general interest would be served by modifying the present basis for reporting the precision of analytical results, inasmuch as some of the data used in the present statistical evaluations are not used in calculating the results reported to the customer division. The Statistics Group will now issue reports to advise production divisions of the precision of reported results (which stay reasonably constant as long as the method is not changed), and they will also monitor the assay methods for the Analytical Service Section by routine survey of the number of analyses required for each assay reported, thus enabling the laboratory to quickly note difficulties and correct them. The monthly precision of the analytical methods previously reported here will no longer be calculated.

The sampling and analyzing of the coating solution (15-8-CS) was discontinued at both B and T plants. This step was taken because sufficient data had been obtained to establish an experience factor on uranium and plutonium loss. It is estimated that a saving of 54 man hours/month of analytical time, based on a 120 run schedule, will be realized as a result of this sample elimination.

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Method CA-6b replaced method CA-6a in both B and T plants on all waste samples except the extraction waste and F cell wastes. The major difference between these two direct mount methods is that stainless steel discs are substituted for platinum, thereby eliminating a decontamination problem. It is estimated that a saving of 70 man hours/month of analytical time, based on a 120 run schedule, will be realized.

A reduction in the frequency of measuring gross fission product content in certain of the 200 Area process solutions has resulted in a total saving of 99 hours/month analytical time. The new assay frequencies are:

1. Gamma measurement on stock dissolver solution (6-1-MS) instead of each canyon starting solution (6-3-MS).

2. Gamma and beta measurement on every fifth sample of the second cycle product cake solution (19-4-P).

3. Gamma measurement on every fifth P-1 sample.

4. Beta measurements on weekly composite samples of the 234-5 Bldg. retention basins (ponds).

Some of these changes cannot immediately be initiated in both plants because of production tests. When they are, an additional 74 man hours/month analytical time will be saved.

The reclamation of one-inch watch glasses used for pipet rinsing was initiated in all 200 Area laboratories. It is estimated that a net annual saving of $2,830.00 in applied material will result.

An intensive check for leaks in the two-inch methane supply line running from the gas manifold at the rear of the 234-5 Bldg. to Room 150 (Testing Room) was made. Under normal operating pressure of 10# no leaks were detectable. However, using a 35# pressure test a slow leak at one of the gate valves in the line was detected. Subsequent repair of the valve has apparently reduced the methane consumption by approximately four cylinders or a savings of $200 per month.

On February 15, plutonium assay of the SN samples (234-5 Bldg.) by direct mounting of an aliquoted sample was discontinued in favor of hydrogen peroxide dissolution of the entire sample prior to aliquoting. This change in procedure was made in order to give a more accurate plutonium assay since it was recognized that low results were being obtained due to poor sampling. Some difficulties in obtaining the proper sample volume from the process hoods have been experienced, and excessively large samples have prolonged the time required for dissolution of the sample. However, it is expected that this trouble will soon be corrected.

300 Area Control and Special Services

The four 300 Area laboratory groups now falling under this broad heading are identified as the Spectrochemical Laboratory, Chemical Research Service Laboratory, Essential Material Laboratory, and 300 Area Control and Physical Testing Laboratory. Since many of the problems presented require the services of

two or more of these laboratory units, no breakdown of the unit reports will be made as has been done in the past.

A special test to determine the amount of moisture pick-up in coal being shipped from Wyoming has been completed. The test involved taking ten individual samples at the mine, and ten from the same cars upon arrival at Hanford. The results indicated that there was some moisture pick-up but not the increased that was expected.

Several Hanford uranium billets produced in January and February contained from 20 to 100 ppm lead; the Specifications call for not more than 10 ppm of lead. This information was reported to the 300 Area Plant Assistance Group, and an investigation is being made to determine the history of the billet material and, consequently, the source of the lead.

Several samples of recirculated water from the Naval Reactor Project (P-13) were analyzed in the Chemical Research Service Laboratory for radio-Ca,-Cu, -Na, and -Cl. The Mn, Si and Ni activities had died out to a large extent, thereby making their analysis only indicative. Hold-back carriers were used to prevent cross contamination during analysis.

A Versene method has been employed for the determination of Ca^{++} and Mg^{++} in plutonium solutions from the Bldg. 234-5 process waste recovery studies. It is superior to the gravimetric-volumetric methods previously employed with regard to the ease in handling radioactive solutions and the time required for analysis. The method is in use in the 100 Area Water Laboratories and is described in the "Journal of the American Water Works Association," January 1950. Briefly, magnesium and calcium are complexed by sodium versenate (Disodium salt of ethylenediaminetetracetic acid). Eriochrome Black T is used as the indicator, and the titrant is a standard sodium versenate solution containing a little magnesium. The calcium dye complex is weak and unsuitable as an indicator; therefore the addition of magnesium permits the titration of calcium samples containing no magnesium. The versenate solution first complexes all the calcium and then the magnesium. When the last trace of magnesium is complexed, the dye turns blue. Having thus obtained combined Ca^{++} and Mg^{++}, the magnesium is determined after the calcium is removed as the oxalate. High salt concentrations do not impair the end point. Plutonium and bivalent metals, such as Cu, Ni, Co, Mn and Fe, interfere but may be complexed.

A sample of boron steel activated in the piles was submitted to the laboratory by the Metallurgy Section in connection with their studies on emergency Pile shutdown methods. Due to the high level of gamma activity, only silica and manganese were determined.

About eighty samples of steel received from the Inspection Group of the Purchasing Division have been completely typed. The stainless steels were analyzed by the Spectrographic Laboratory and the Hot Rolled steels were analyzed for S, P, Si, Mn, Cu and C in the Essential Material Laboratory.

Two synthetic SN-1 solutions from studies by the Plant Assistance Group in the 234-5 Bldg. were analyzed for Si, Ca, Al and P to determine whether or not a new type alundum filter thimble could be used in that process.

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Several dissolver solutions from the Redox process in Bldg. 321 were analyzed for Cl, F and Mn to determine the cause of the unexpected corrosion in the tank and centrifuge shaft. Very little chloride was found; however, Ca./100 ppm. of fluoride was found which could possibly have caused the corrosion. It is also conceivable that chloride was initially present and in the presence of permanganate was oxidized and evolved as chlorine which attacked the stainless steel.

Several samples of porcelain type refractories were submitted by the Pile Engineering Section for boron determinations. Initial spectrographic reports indicate low boron, so work has been undertaken to analyze the samples colorimetrically.

The calibration of the Volumetric Determinator of the Lindberg Carbon Induction Furnace was accomplished by analyzing a series of carbon-steel standards and checking the graduations on the buret. Analyses for carbon are comparable in accuracy to those obtained using conventional gas absorption methods and require only 50% of the analytical time.

To service adequately an increased work load expected for the P-10-A Program last month, a new hy-vacuum gas analyzer was constructed. While this program has now been curtailed, there will still be a need for the apparatus. Several improvements were planned for the analyzer, namely, induction heating, reduced total volume (to increase sensitivity), a continuous recording manometer and a non-metallic tube (quartz or porcelain) to reduce gaseous diffusion or hold-up. The Toepler pumps were found to be unsatisfactory because the check valves did not seat properly. Extensive remodeling and repair work was done which necessitated recalibration of the equipment.

Chemical Development Service Laboratory

This group has been divorced from its affiliation with the 300 Area Control and Special Services Laboratories, and is now directed by the Area Supervisor, 200 Area Analytical (Extraction Processes).

On February 26, the Chemical Development Service Laboratory inaugurated two-shift coverage (8-4 and 4-12) seven days/week to provide the necessary analytical control for continuous 321 Bldg. operation. It is expected that this shift coverage will be necessary for two or three months.

Efficiency testing of the Hershey Bag filters in the towers of the air conditioning unit for the 314 Bldg. continued during February. The test filter papers are being analyzed for uranium content by the fluorimetric method.

Methods Control Group

The name of the Methods Adaptation Group was changed to Methods Control Group effective February 1st. The Counting Standards and Calibration Units were combined with this Group, and are now identified as the Chemical and Counting Standards Unit. Methods Control will have the responsibility of maintaining the quality of the analytical methods employed throughout the Analytical Service Section, and will act as a prime mover in the over-

all program to reduce costs.

The fluorimetric method for the determination of Chemical 70-58 is now in use as the principal method for the analysis of process samples from Bldg. 234-5. A test sample is being analyzed with each group of plant samples to establish the accuracy and precision of the method in normal operation. A shortage of Klett tubes, used as cuvettes in the fluorimeter, limited the application of this method prior to February 19. At that time selected Pyrex test tubes, without rims, having a nominal size of 15 x 125 mm, were substituted for the Klett tubes. A comparison of the Pyrex tubes with the Klett tubes showed the following:

1. The walls of Pyrex tubes are almost twice as thick, and are therefore much less subject to breakage.

2. The variation between readings on the same solution in two tubes was less between Pyrex tubes than between Klett tubes.

3. In comparing the same solution in both Klett and Pyrex tubes, the sensitivity of the instrument was 3% higher for the Pyrex tubes because of their better transmission of light.

4. The Klett tubes are listed at $0.60 each. The Pyrex tubes cost $0.04 each with an additional cost for sorting and marking, labor and overhead of $0.10 per tube. This amounts to an initial savings of $464 on the seven gross of tubes ordered.

The feasibility of eliminating the plutonium assay on the E-4-RC samples was surveyed. Production data from the periods October 30 to November 22, 1950, and from January 22 to February 6, 1951, were examined. Material balances calculated from assays of solutions to be transferred into the E-4-RC tank, were 96.4% and 92.6% (for the two periods, respectively) of the assay values of the solutions in E-4-RC tank. Further investigations are being planned by the 200 Areas Program Committee.

Further study of methods for the recovery of plutonium from analytical wastes indicates that the use of a hydroxide precipitation will give substantially quantitative recoveries in the absence of carrier. This method has been tried on a microgram scale for analytical wastes from the determination of Chemical 70-58, fluoride, silica, and boron. The filtration characterics of plutonium hydroxide are being studied to enable design of suitable apparatus to handle 20-40 gram batches.

The results obtained by routine analysis of the AT solution by both chemical assay (CA) and radiochemical assay (RA) have indicated the advisability of revising the correction factor (CA/RA) currently used in the estimation of total grams of plutonium from total counts. The presently used factor appears to result in an overestimation of the amount of plutonium by 2.5% at 400 MWD and 4.4% at 600 MWD.

Three samples from Critical Mass Studies (P-11) were analyzed for Bi content. No difficulties were experienced and the maximum range of duplicates was 0.5%. The volumetric method for the determination of phosphates in the TBP Process was refined and modified to permit the determination of phosphate in other P-11 Project samples. The precision of the method, based on twenty

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determinations on a plutonium-free standard, is ± 1.96% for duplicate determinations.

A study was made of the reproducibility of the analytical results from the Hanford Type Fluorimeter (Dwg. No. H-4-1200), which is used in the determination of trace quantities of uranium. Five standards containing varying amounts of pure UNH in 0.05 N nitric acid were assayed. The variance between samples was not significant compared with the variance of replicate determinations on the same sample, indicating the instrument is quite stable. The precision for the mean of four determinations was ± 9.4%. This instrument appears to be more reliable than the Price Fluorimeter and is less expensive; present estimates of fabrication costs are $3,200 for the Price Fluorophotometer and $1,800 for the Hanford type.

The apparatus required for the determination of specific gravity of highly radioactive solutions by the falling drop technique has been completely assembled and its operation is satisfactory. Standardization of the organic reference liquids by dropping aqueous solutions of known specific gravities has been completed up to the value of 1.41. Mixtures of alpha bromnaphthalene and various petroleum oils gave solutions of suitable densities with viscosities of from 40-60 millistokes. This viscosity range is desirable in order to maintain linear relationships between the reciprocal of dropping time and specific gravity. With an organic reference liquid of specific gravity ranging from 0.01 to 0.06 units below that of the aqueous solution to be tested, a falling time between 300 and 30 seconds is observed for a 40 cm. path. For specific gravities above 1.41, organic reference liquids consisting of iodonaphthalene and mineral oil were calibrated. On standing, however, these solutions developed a dark color, making it impossible to time the falling drop. Attempts to obtain a transparent solution by treatment with activated carbon or by vacuum distillation were not successful. Iodobenzene was found to be stable but resulted in solutions of undersirably low viscosities. Tribromopropane solutions developed turbidity when standing exposed to the atmosphere.

The coating of glassware with a film of plastic such as Tygon or Zapon was found to increase the resistance of the glass to breakage by impact; it also prevented splintering of the glass in case of breakage. The plastic coating is applied by spraying or painting or dipping.

An investigation of the effect of absorption losses and of ionization fractions on gamma determinations as measured in a Shonka Chamber has been completed. Absorption losses of the sample-to-chamber path can be estimated and approximate net ionization energies or total curies determined without the use of standards being run concurrently.

Readjustment of the ASVP instruments in the 231 Bldg. Laboratory was made after conference with representatives of the Instrument Division. Thresholds were set to 1900 volts. Plateaus were in excess of 500 volts with slopes of less than 0.1% per 100 volts. Cross checks were run and the two instruments checked within 0.1% of each other and of the 3706 Bldg. instruments.

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ANALYTICAL RESEARCH

P-10 Analytical Studies

The mass spectrometer for analysis of P-10 process materials has continued to receive intensive use. Approximately 300 process and development samples were analyzed during the month. Development work involved the establishment of more exact factors for T_2 and HT. These factors include the effect of differential diffusion of the molecules, differences in ionization efficiencies, the extent of formation of singly and doubly ionized ions, and the effect of ion focus on the observed recording. Installation of a chart recorder to record the voltage peaks made desirable the use of constant operating conditions throughout an entire recording. Examination of past data and modification of the instrument allowed selection of such constant setting for the sensitivity and the ion focus.

Intensive work by Pile Technology and Analytical Research personnel has been directed toward the selection of suitable gas sampling techniques. Pure hydrogen and hydrogen-helium mixtures have been prepared and will be introduced into sampling bulbs of various designs. Repeated analyses of these samples after various periods of storage will allow an evaluation of the extent of contamination caused by release of impurities from the walls of the sample container. In order to provide a more satisfactory system for attaching various sample bulbs to the mass spectrometer, a new manifold has been designed, constructed, and made ready for installation. Arrangements have been completed for cooperative analyses of product and by-product samples by the National Bureau of Standards, KAPL, and Hanford, and samples are being prepared for distribution.

An examination of all mass spectrometric analyses of P-10 products has been completed.

The precision of the analyses has improved steadily from $\pm$ 1.45% absolute to the current value of $\pm$ 0.68%, excepting a period including the last three weeks of December during which the precision was poor because of the heavy work load. The data summarized above do not include samples which were obviously air contaminated.

The direct reading emission spectrometer that is being investigated for the analysis of P-10 process materials has been tested by analyzing several product samples. The results agreed satisfactorily with the mass spectrometric analyses, except in the case of one sample which was of moderately low purity. Disagreement in the latter case was not unexpected because the emission spectrometric method had not been evaluated in the lower composition range. Effort is continuing toward the analysis of many product samples and of purified hydrogen-deuterium standard samples.

Several representatives of the Leeds & Northrup Company, whose emission spectrometer is on loan for the analytical investigation, visited Hanford Works to observe operation of the instrument and to discuss Leeds & Northrup and Hanford interests in the proposed program.

Twenty-one unirradiated lithium-[redacted] analyzed for gas content.

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At mid-month the conduct of these analyses was discontinued as a result of an A.E.C. decision to cease fabrication of these slugs at Hanford. Two laboratory assistants who had been conducting these analyses were transferred to the 234-5 laboratory.

At a meeting held in Schenectady, Hanford and KAPL personnel discussed the various phases of the P-10 development programs at the two sites. As part of these discussions, detailed consideration was given to the mass and emission spectrometric analytical procedures receiving attention at both sites, and plans were made for continuing the coordinated method and instrument development program.

Radiochemical Methods (RDA #TC-1)

Instrument and procedure tests with the recently installed fission counter for the determination of Pu^{239} and Pu^{240} have continued. Data have been obtained relating the Pu^{240} content of the sample to the spontaneous fission counts. The Pu^{239} content of a disc sample is evaluated by placing the material in a high neutron field and determining the total induced fission counts. Data were obtained relating the latter to the sample size. In both cases a linear relationship was obtained for samples of less than about 3 mg., whereas a deviation from linearity was observed with larger samples. A 3 mg. sample size is thus indicated as about optimum.

The final components for the Fairstein alpha energy analyzer have been received and installed, and the instrument is presently undergoing final testing. A new ionization chamber, designed after a similar unit observed at U.C.R.L., is being constructed. It is a more rugged and simpler unit than the one previously used and has the distinct advantage of allowing measurement of six separate discs without opening the chamber to the atmosphere.

In order to evaluate the behavior of americium in the electrodeposition procedure employed for preparation of fission and alpha energy counting discs, a sample of pure americium was obtained and subjected to the procedure. The fact that approximately 20% americium was plated on the disc indicates the need for modifying the procedure to eliminate americium deposition and suggests that part of the americium may exist in a valence state higher than + 3.

Additional data have been obtained to evaluate further the effect of substitution of stainless steel counting discs for platinum discs in routine radioassays associated with the Bismuth Phosphate Process. The data support the previous observation that with certain samples the presence of phosphoric acid and fluoride on the stainless steel affects the accuracy of the counting results. This apparently results from an attack on the metal by these substances. Radio-analyses of metal waste solutions give particularly poor results in this respect. The method employed in this case involves two successive precipitations of lanthanum fluoride to carry the plutonium and thus effect a separation from uranium. It was found that stainless steel discs could be used satisfactorily if the procedure were modified to include successive separations on lanthanum fluoride and lanthanum hydroxide.

A long range research program for the development of a standard scheme for separation of rare earth fission products by means of adsorption column tech-

niques has been extended to include radiosamarium and radioneodymium, together with radioisotopes of yttrium, promethium, and cerium. Since an incomplete separation was obtained in preliminary experimental work, a larger adsorption column following the design of one described in the literature is being assembled for testing.

Spectrochemical Methods (RDA #TC-2)

The procedure established for routine determinations of impurities in plutonium metal at Los Alamos and Hanford involves the separation of impurities by means of cupferron extraction and subsequent spectrographic analysis. Investigations at both sites indicated that the method yielded appreciably low results and Los Alamos ascribed the low results to the presence of small quantities of organic matter in the material transferred to and excited on the spectrographic electrode. Subsequent investigations at Hanford revealed that this effect was only partly responsible for the low results and that another source of error resulted from the difficulty of removing the separated impurities from the container in which they are processed prior to transfer to the electrodes. Use of an acid rinse to effect a complete transfer was undesirable because of the subsequent reaction of the acid with the copper excitation electrode. It was found that this reaction could be appreciably retarded by coating the electrode with a very thin film of grease prior to sample loading.

The procedure used for the determination of TBP in RCU metal recovery streams is a time-consuming one based on the determination of phosphorus. Attempts to develop an improved method based on adsorption of the TBP in a zeolite or paper pulp column and subsequent infrared absorption measurements appear very promising.

Electrochemical Methods (RDA #TC-3)

The exact determination of weak and strong acids in the presence of each other poses a difficult analytical problem. Examination of such a system in connection with the determination of weak acids formed in Redox streams as a result of hexone decomposition led to the development of a method some time ago in which the components were titrated in an aqueous-isopropanol medium. In following the titration by pH measurements, a satisfactory endpoint break was obtained. Use of this medium in the coulometric titration of nitric acid in the presence of uranium has been suggested and tested. Although the reaction is slow, highly reproducible results are obtained. In a medium containing 80% alcohol, a pH break of 2-2.5 units is observed. With a higher alcohol content, two phases are obtained; with lower content, the endpoint break is diminished. Titrations in aqueous medium according to established practice yield a pH break of only 0.1 pH units.

Conventional Chemical Methods (RDA #TC-4)

Experimental work with chromatographic methods of separation is continuing; the separation of Chemical 70-58 from plutonium is the one being investigated. A small quantity of the chemical on a strip of filter paper can be completely removed in one hour by elution with isopropyl ether-hydrochloric acid. Plutonium treated in a similar manner is completely retained by the filter paper.

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The exact determination of uranium in aluminum-silicon bath has proven to be a rather difficult problem. Dissolution of the sample by various methods has required an excessive volume of solution and consequently has reduced the uranium concentration to an extent which makes its determination unsatisfactory. A method has now been found which is not subject to this difficulty. The method employed was treatment of the sample at 200° C in an atmosphere of dry chlorine. Under such conditions the sample reacted and was volatilized, leaving a residue 1-2% of the original weight and containing no uranium. The distilled chlorides were readily soluble in water or acids to form a solution containing the equivalent of 0.2 g/L uranium with an Al-Si alloy with 0.3% uranium content. Since enriched uranium slugs are no longer being canned at Hanford, the need for an exact determination of uranium in Al-Si alloy no longer exists. However, the procedure investigated holds promise for other applications.

The sensitivity with which trace impurities in uranium may be determined by spectrographic means is limited by the purity of uranium available as a standard. Extremely pure uranium has been prepared by a newly developed technique. A three-chamber apparatus partitioned by two organophilic capillary membranes is positioned vertically. The upper chamber is filled with a saturated solution of reagent grade UNH, the central chamber with adsorber material immersed in TBP solvent, and the lower chamber with a slowly moving stream of water. In operation, uranium is selectively transferred from the upper chamber to the solvent chamber where further purification occurs by selective adsorption of impurities. Uranium is then transferred to the aqueous phase in the lower chamber unaccompanied by impurities.

The strong complexing of uranium by TBP suggested the use of an adsorption column packed with solid metal phosphate granules for removing uranium from an impure solution. Tests were made with a zirconium phosphate column by introducing a 0.1 M solution of nitric acid containing uranium, silver, and iron. The silver and iron, completely free from uranium, were readily removed by washing with dilute nitric acid. Subsequent washing with more concentrated nitric acid removed uranium that was entirely free from the impurities.

The continuing program of preparation of standard samples to allow evaluation of the accuracy of routine laboratory operations has produced the following results during the past month:

Sample	Constituent	Laboratory	Method	Concentration (d/m/ml)	Found (d/m/ml)	No.
6-3-MR		Chem. Res.				
	Pu	Service-3706	CA-2a	6.29×10^6	6.29×10^6	8
	Pu	222-B	CA-6b	2.00×10^5	2.01×10^5	12
	Pu	222-T	CA-6b	2.00×10^5	2.00×10^5	23
	Am	222-B	--	3.94×10^3	4.05×10^3	14
	Am	222-T	--	3.94×10^3	3.96×10^3	21
P-1						
	Pu	231	CA-6a	1.508×10^9	1.543×10^9	19

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Plutonium Impurity Standards	Ba, Cr, Mn, Ni	234-5	Spectro-graphic	Normal	Low	7
	Al	234-5	Spectro-graphic	Normal	High	7
	Be, Ca, Cd, Ce, Co, In, La, Li, Mg, Na, Pb, Sr, Tl, Zn	234-5	Spectro-graphic	Normal	Very good	7

The plutonium impurity standards were prepared by dissolving pure plutonium metal and adding known quantities of the indicated impurities to the solution. These were then analyzed sepectrographically after employing a cupferron separation. The last set of samples agreed with the standard values to within a factor of 2. The other set of standards were high or low as indicated by a factor of 2 to 4.

Miscellaneous

The Analytical Research Section has continued to cooperate in the production test designed to provide increased water flow through the pile tubes, decreased cost of water treatment, elimination of film deposit, and reduction of activity of pile effluent water. The proposed test will require determination of the radioisotopes of manganese, copper, silicon, and sodium. Available methods for these determinations have been examined and modified where necessary to make them applicable to the necessary determinations. A suggestion that application of Dri-Film coatings to pile tubes and slugs may prevent film build-up was given to the production test planning committee, and arrangements were made to evaluate the idea in flow laboratory tests.

ENGINEERING SERVICES

Mechanical Shops (Bldgs. 101 and 3706)

Work volume statistics for the Mechanical Shops are as follows:

	Customer Division or Program	January No. of Jobs	January Man-Hours	February No. of Jobs	February Man-Hours
Work Done on Jobs Completed	P-10	20	406	16	391
	Pile Tech. (Incl. P-12) (a)	54	1,085	52	830
	Separations Tech.	43	407	18	119
	Technical Services	47	446	35	295
	Other Divisions	2	24	5	80
	Sub-Total	166	2,368	126	1,715

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Work Done on Jobs Not Completed	P-10	2	377	4	526
	Pile Tech. (Incl. P-12)	13	292	11	168
	Separations Tech.	9	36	5	63
	Technical Services	9	173	9	159
	Other Divisions	3	8	3	68
	Sub-Total	36	886	32	984
Total Work Done			3,254		2,699

					Man-Hours To Complete
Work Backlog:					
Jobs Started	P-10	2	1,168	4	868
	Pile Tech. (Incl. P-12)	13	3,926	11	3,941
	Separations Tech.	9	86	5	144
	Technical Services	9	101	9	314
	Other Divisions	3(b)	66	3(b)	320
	Sub-Total	36	5,347	32	5,587
Jobs Not Yet Started	P-10	5	1,281	4	991
	Pile Tech. (Incl. P-12)	12(c)	233	10	462
	Separations Tech.	7	61	9	430
	Technical Services	28(d)	673	22	1,810
	Other Divisions	3	374	3	49
	Sub-Total	55	2,622	43	3,742
Total Backlog			7,969(e)		9,329(f)
Preliminary man-hour estimate on 9 unestim. jobs (c&d)			500	)	Included above
Design Unit "RDA" requests			1,000	)	
Total			9,469	)	

(a) P-12 designates the Exponential Pile Project.
(b) Includes one order that is unestimated due to the work being of a routine nature.
(c) Plus two jobs that are as yet unestimated.
(d) Plus seven jobs that are as yet unestimated.
(e) Does not include 923 man-hours that were transferred to Instrument nor 8 man-hours that were transferred to Maintenance during January.
(f) Does not include 46 man-hours that were transferred to Instrument nor 686 man-hours that were transferred to Maintenance during February.

Graphite sample shipments continued to be received from Great Lakes Carbon Company. Machining and testing of these samples was conducted.

Two Toepler pump units for P-10 were delivered to Bldg. 108-B during the month as scheduled. Test results continue to indicate satisfactory operation. One hand-operated Toepler pump, together with necessary valves and fittings, was fabricated for use by the P-10 development group.

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Fabrication work on the four sets of mercury pots for P-10 was completed and the units delivered to Bldg. 108-B on schedule. A total of 50 has been completed. A magnetic stirrer for mixing gases in a vacuum container was fabricated for the P-10 development group. Several small jobs were completed during the month for the P-10 operation, including special stainless steel tapers and bushings for bellows, glass racks, etc.

Test work on the cut-off box for the Metallurgy Section is continuing in the Bldg. 101 mock-up area. Shop support is being rendered as required. A number of specialty graphite items for the P-12 group were fabricated, and Technical Shops personnel are continuing assistance in erection of the exponential piles.

Fabrication work and installation of the "W" hole mock-up for the Pile Engineering Section is continuing. Fabrication work on an "L-Z" nozzle was completed. The "L-Z" nozzle is a modified pile process tube inlet nozzle for use in introducing wiring and small diameter tubing into process tubes, for the purpose of making electrical and gas pressure or flow connections.

A special gate mock-up for the Ball 3-K VSR step plug was fabricated during the month and delivered to Pile Engineering for special tests.

Fabrication and development work is continuing on special handling tongs for use in the multicurie cell of Bldg. 222-S. Installation and test work for the multicurie cell air hoists also is being continued. Modification to the air hoists and of component parts is being done as test results indicate necessary changes. A special Lucite panel was fabricated for a type K hood with interchange locks and fixtures.

A large number of small jobs were completed in the Bldg. 3706 Shop, principally in support of work being carried on by the Chemical Research, Analytical and Metallurgy Sections. Work was completed on the thermo-conductivity apparatus for the Pile Technology Division. Work is currently being conducted on the installation of a Toepler pump in a brass case for use by Analytical Research. Special assistance is being rendered in the development of a camera mount for the Metallurgy Section to be used on the X-ray diffraction unit.

Several small jobs in progress in this shop for P-10 include work in support of the Glass Shop and work being carried on in Bldg. 3706 by the Analytical and Metallurgy Sections for the P-10 program.

Glass Shop

Work volume statistics for the Glass Shop (exclusive of P-10 service) are as follows:

	January	February
Jobs Completed		
New	65	56
Repairs	9	14
Revisions	10	14
Total	84	84
Job Backlog	22	10

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At various times during the month, seven glass blowers were assigned full time to P-10 work at Bldg. 108-B. Three of these men were working shifts on production lines, and the other four were rendering assistance in development work. No personnel had to be removed from P-10 production line work due to being above the working limit for contamination.

The trainees are increasingly valuable due to their ability to fabricate some of the less complicated parts. One glass shop trainee continued on assignment to the H.I. Biology Division in Bldg. 108-F. The Glass Shop Foreman is continuing assistance to the H.I. Divisions in the development and improvement of the present Vibrating Reed Chambers.

Special repairs were made to the Analytical Service Section's gas analysis line located in the Counting Room of Bldg. 105, 100-H Area.

Equipment Design

Work volume statistics for the Equipment Design Group, expressed as man-hours, are summarized as follows:

	January		February	
	Engineering	Drafting & Misc.	Engineering	Drafting & Misc.
Pile Technology				
P-10	-	-	32	35
Engineering Section	124	540	78	499
Physics Section	45	6	-	-
Metallurgy Section	231	-	218	-
Separations Technology				
Chemical Research Section	366	253	189	105
Chemical Development Section	77	152	105	176
Technical Services				
Engineering Sect. (Tech. Shops)	-	-	28	28
Analytical Sections	108	76	84	64
Laboratory Equipment Development (RDA #TC-5)	296	247	384	387
Totals	1,247	1,274	1,118	1,294

The following work was done for the various Technical Sections as indicated:

P-10

1. Plans were drawn up for the mask-washing facilities at 108-B.

Pile Engineering Section

1. Design of the "W" hole mock-up continued.

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2. In addition to many graphs, several equipment drawings were made, such as the "test nozzle," the "transfer chamber," the "bubble tester," the "W cooler shield plugs," etc.

3. One designer was placed on direct assignment to this Section, starting Feb. 7.

Metallurgy Section

1. Design of the interferometer dilatometer continued.

2. Experimental slicing was carried out with the "slice and dice" box in collaboration with the Technical Shops. Design for hot loading and clean-up operations was in process.

3. Drawings for the mechanized polishing head were completed, and the slug breaker was being drafted.

Chemical Research Section

1. Design scope sketches were made for a nine-foot tall gloved box for extraction column use.

2. Numerous equipment designs or revisions were made, such as a container lid, a glass column flange, an electronic time-delay device, an electric power supply panel, a gloved-hood port panel; and additional work was done on the waste treatment and column equipment for Junior Cave use.

3. Scoping continued on the Junior Cave, gloved box and accessory equipment for Bldg. 222-S use.

Chemical Development Section

1. Design revisions, equipment scoping and expediting were carried out for Bldg. 222-S apparatus such as Junior Caves, gloved boxes, dissolver solution cask and sampler, mixer-settler, counter-current batch extractor, etc.

2. One draftsman remained on direct assignment through February 28.

Engineering Section (Tech. Shops)

1. Various scoping drawings and equipment lists were prepared for the proposed Mechanical Development Bldg.

Analytical Sections

1. Several equipment designs or revisions were made, such as a dish pedestal holder, a multiple disk holder, a corner table, etc.

2. Scoping of laboratory equipment accessories and services for Bldg. 222-S continued.

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Laboratory Equipment Development (RDA #TC-5)

The following work was done under this RDA:

1. Design of multicurie cell equipment was accelerated. Scoping of the slave-type manipulator was completed and details were being drawn. The geared hydraulic tongs were being built in the shops. The assembly of the remote controlled in-cell air hoist was being completed in the wood mock-up. Development of the service panel continued. One 900 pound lead glass viewing window was being mounted in the cell mock-up. Design of the vapor ionization level recorder was nearly completed, and fabrication was started.

2. Additional resistant coatings were applied experimentally, and some plastic castings were made.

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, proceeded satisfactorily and is approximately 91% complete. Procurement of critical items is extremely difficult, particularly stainless steel hood components and the stainless steel hot waste tank. Major construction is still scheduled for completion by April 1. Balancing of the ventilation system and installation of the waste tank will be accomplished after occupancy by Technical personnel.

Contact engineer liaison on this building is steadily increasing as the finished stage is approached, and more than 15 field trips were required during February. The orderly progression of acceptance testing and the necessity of field-locating many items is contributing to this work load.

The waste disposal facility for this new laboratory is approximately 86% complete.

Radiochemistry Bldg., Proj. C-381

Relatively little contact engineer liaison was required during February on the design of this major building for the new Hanford Works Laboratory Area. Latest communications from the Leland S. Rosener Co. indicate that final checking is in progress and that all drawings and specifications will be received early in March.

A Part 2 Project Proposal requesting the allocation of $4,350,700 for the construction of this building was approved by the A & B Committee on February 13 and transmitted to the A.E.C. Specifications for the building ventilation system were altered so that only stainless steel can be used in the exhaust ductwork.

Plot Plan & Utilities, Proj. C-394

The design of these facilities was estimated to be 50% complete at month

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end. The design of the new parking area to be located outside the South gate has been discussed in conferences between representatives of the D & C Divisions and the Leland S. Rosener Co., and the sketch submitted by the Technical Divisions has been accepted as the basis for final design.

A sketch of the proposed Works Laboratory Area badge house, SK-4-50060, was prepared by the Technical Divisions and has been accepted by the D & C Divisions as the basis for final design. The design completion date has been tentatively set for June 1, 1951.

The decision was reached that the required expansion of the 300 Area boiler plant and auxiliaries should not be handled as a Part 3 of the Plot Plan & Utilities Project, but should be a separate project sponsored by the Power Division, the user of the new facilities involved. Most of the funds required for this work will be supplied from the Works Laboratory account, with only $50,000 of the total cost to be obtained from funds budgeted by Manufacturing (as their share of the proposed new emergency generator).

Radiometallurgy Bldg., Proj. C-385

A representative of the D & C Divisions and the contact engineer for the Radiometallurgy Bldg. visited the Leland S. Rosener Co. in San Francisco early in the month to answer numerous questions on the design of special equipment, and to clarify some shielding problems. Comments and approvals of the mechanical equipment check prints, and of the preliminary structural prints on this building, were transmitted to the D & C Divisions for forwarding to the architect-engineer.

Mechanical Development Bldg., Proj. C-406

The Dix Steel Co. submitted the preliminary drawings of the shell of this building for Technical approval. These plans differed from the original scope drawings in one respect only; namely, the clerestory has been omitted and the 32 feet, or maximum height of the building, has been continued for the entire length. This change is a decided improvement and the additional space is being provided at no extra cost.

Good progress was made on the preparation of a Part 2 of Project C-406, covering prompt completion of the Mechanical Development Bldg. for Technical Shops and Design Group occupancy, as required by the Project C-431 need for Bldg. 101 by September 15, 1951. As this new pile project thereby is preventing (1) initial use of the Mechanical Development Bldg. shell by construction subcontractors, and (2) the transfer of machine tools from Bldg. 101 to the new building, it is expected to bear the extra costs involved.

Another consideration in connection with the early completion of the Phase II construction work on this project is whether approval will be granted for the negotiation of a lump-sum contract extension with the Dix Steel Co. to include this portion of the building construction. A.E.C. approval had not been received for this at month end.

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Pile Technology Bldg., Proj. C-414

Work Authority C-414 (2) was issued by the D & C Divisions on February 14 authorizing procurement of installed laboratory equipment. Accordingly, construction purchase requisitions were written following an equipment list submitted to Chas. T. Main Co. This equipment list included detailed specification of the equipment and BPF's. In accordance with discussions between the contact engineers and Chas. T. Main Co. engineers, new locations of services and utilities in certain rooms were indicated on revised room layouts.

Plans were made for the contact engineers to visit the Chas. T. Main offices in Boston early in March, together with representatives from the D & C Divisions, to firm-up the final designs for this building.

Library & Files Bldg., Proj. C-421

Tentative design plans for this building were reviewed with visiting representatives of the Chas. T. Main Co. Agreement was reached and the preparation of preliminary plans by this architect-engineer is now essentially complete. A revised project proposal, covering both design and construction of the reduced-scope building in the amount of $574,000, was approved by the A & B Committee and transmitted to the A.E.C. on February 13.

Laboratory Supply Bldg. (3702 Conversion)

It was decided that this Stores Division facility in the Works Laboratory Area should be obtained by conversion of the existing Bldg. 3702, rather than by erection of a new building. Planning was initiated on this basis, and the site originally reserved for the Laboratory Supply Bldg. was released for other use.

Building Administration & Services

300 Area Services

Normal services in Bldg. 3706 continued routinely. Material control, stockroom and work order activity is summarized as follows:

	January	February
Purchase Requisitions		
Total number processed	73	46
Number requiring special expediting	12	16
Number requiring emergency handling	3	0
Stores Stock Requests Processed	1	2
Store Orders		
Total number processed	1,180	877
Number requiring emergency pick-ups & deliveries	11	7
Work Orders Processed	34	39

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The Electrical Division completed the change-over of 300 Area telephone service to the new area exchange, which released Rm. 25 in Bldg. 3706 for reassignment. This space is being divided into two offices, one of which will be occupied by the Chemical Research Section and the other by the Analytical Service Section.

A review of the solvent storage requirements for the Technical Divisions was completed. This rescoping indicated these needs to be less now than previously estimated. However, provision of space for the storage of solvent stocks desirably maintained by the Stores Division in the 300 Area will require this space difference. Plans were completed to combine this facility with the solvent studies laboratory required by the Chemical Research Section. The 300 Area Services Group of the Engineering Section will follow the design and construction of the combined facility.

Defense evacuation procedures for the 300 Area Technical exclusion area buildings were issued through the 300 Area Council. A practice evacuation will be held to determine the feasibility of the personnel "dispersal" method, and to show any further modification of procedures which may be necessary.

Redox Laboratory (Bldg. 222-S)

Agreement was reached that the Engineering Section of the Technical Services Division will be responsible for all general building administration and service functions in the new Redox & Plant Assistance Laboratory (Bldg. 222-S). This work will duplicate the services which have been rendered in Bldg. 3706, plus (1) the operation of central equipment decontamination facilities and (2) the in-site maintenance and alteration of special laboratory equipment such as gloved boxes and junior caves.

STATISTICAL & COMPUTING SERVICES

Statistical Services

Metallurgical data obtained from the statistically designed experiment to determine the structural operating limits on the dilatometric testing of canned uranium slugs were submitted for statistical analysis. These data were in a form to permit the use of a new statistical technique (one of several brought back by W. C. Healy from the December meeting of the Institute of Mathematical Statistics). More data are being gathered by the Metallurgy Section for broader application of this technique to the same problem.

Renewed interest in the quality of virgin uranium metal supplied to Hanford Works has led to intensified statistical study of the results from billet egg analysis, both chemical and functional. Special efforts were directed toward preparation of statistics for the meeting held at the Mallinckrodt Chemical Works in St. Louis on February 27 and 28. Primary statistical objectives at present are: (1) An adequate definition of normal uranium metal quality; (2) the design of statistical acceptance sampling plans; and (3) the stratification of lots throughout the refining and rolling processes prior to receipt at Hanford, to permit improved comparison of data from all sites involved. The necessary statistical studies have been considerably simplified by the use of IBM methods of tabulation and computation.

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Statistical controls were reported on P Division operational results at Machining, Pickling, Canning and Autoclave, Test Pile, and Melt Plant (for monthly report see Doc. HW-20442).

A statistical study of the weights of uranium billet eggs and Test Pile values indicate that present variations in the weights of eggs are not having a significant effect on the precision of current TDS measurements. A study of the precision of Test Pile 8" primary and secondary standards was begun for the Pile Physics Section.

Confidence limits for radioactivity measurements of pellets exposed in the 105-H pile were calculated from data submitted by the Pile Physics Section. Further investigations were made in the problem of xenon decay curves for the 105-B pile. Calculations are being continued on IBM equipment.

For the Chemical Research Section, assistance was given in the design of an experiment to permit the use of a multiple correlation technique in a study of the mechanism of extraction in the pulse column. In particular, it is desired to establish the effects of orifice diameter, density and viscosity of the organic and aqueous phases, linear velocity of the jet, and interfacial tension on drop diameter, jet length, and drop velocity when the organic phase is jetted into the aqueous phase through an orifice in a plate. Forty combinations of independent variables were selected by statistical randomization to permit an unbiased estimate of coefficients in equations relating the four independent variables to the three dependent variables listed above. Additional work for the Chemical Research Section was completed on the problem of fitting the best curve relating the distribution coefficient of Pu(+IV) and solution variables.

The statistical study of the effects of five operating variables on yield during reduction in plutonium metal fabrication was completed for the Separations Technology Division.

Preliminary estimates were made of sampling required in connection with a proposed study of errors in sampling the E4 tank.

The regular semi-monthly reports of certain Kr-85 computations for the A.E.C. were completed and forwarded.

Monthly statistical controls were reported on the AT-Specific Gravity Relationship, and on the Hanford Los-Alamos plutonium assay differences. Commencing with the month of March (see document HW-20441), the monthly report of 200 Area control laboratories accuracy and precision will be replaced by a different type of report, better designed to serve the needs of the Analytical Section. This new report will consist of data on the percent laboratory reruns, providing a measure of laboratory efficiency and a criterion of the suitability of the range limits used for checking laboratory assays.

Computing Services

During the past six weeks the computing laboratory has been operating near estimated top capacity of the I.B.M. Card Programmed Electronic Calculator, with little lost time due to shut down. As this new laboratory demonstrates its ability to handle complex computing at high speed, requests for computing

services are increasing. The present backlog of problems is estimated at 12 months of computing, as compared to 7 months at the end of January and 6 months at the end of December. Additional equipment has been requisitioned, but delivery is not expected before January 1952. In the meantime, means for using present equipment on a two-shift basis are under consideration.

The largest and most important computing problem to date has involved the H-10 loading at 105-H. Four separate studies of expected tube exposures were made to aid in planning the discharge of these tubes. Calculations for this problem required over 300,000 cards to pass through the calculator.

Two large tables were computed, one of saturated steam properties and the other of the fifth root of the mixture viscosity vs. pressure and percentage moisture.

Programming was completed for the following mathematical functions: Sine, cosine, arctangent, logarithms, e^x, and a^x. This library of functions will be built up as required to include all the functions normally used.

A table of constants for rapid computation of xenon in the field was prepared for 350 inhours of flattening for powers of 300 to 520 MW at 5 MW intervals. This augments the original table prepared to 300 MW. A table of 200 inhours of flattening will be prepared when machine time can be spared.

Programming has been completed for exposure accounting of the special request samples at 105-H. Exposures will be calculated from temperature data recorded from the IBM punch at "H."

A long term gain study was completed using data taken from 105-H up to the first discharge of metal. This is a study to determine the combined reactivity effect of product formation, 235 burn-out, samarium formation, and burn out of any impurities that may be in the graphite.

Modified Bessel function programming has been completed preliminary to thermal utilization equation computations.

Programming was completed for calculating the diffusion length from P-12 data, including corrections for end effects and harmonics. A semi-logarithmic least squares fit of the corrected data is the basis of the calculation of the diffusion length. Other problems programmed for the P-12 Project involve the fitting of cosine series and exponential series.

Two routine problems relating to the calculation of graphite heat conductivity were set up for the pile engineers. One treats data taken on the graphite thermocouples and associates water temperature data at 105-H, and the other utilizes data from a special series of thermocouples installed at 105-F.

Further programming using revised data sheets has been applied to sheep experiment data of the Zoology Section of the Health Instruments Division. Routine calculations were made on aquatic biology data.

Preliminary plans have been made for handling meteorological data.

Computations were completed for the statisticians in preparation for the

February meeting on uranium metal quality at the Mallinckrodt Chemical Works.

At the request of the statisticians, computations were completed for obtaining multiple and partial correlation coefficients using Building 234-5 plutonium metal yield data. Another set of data will be submitted in the near future.

LIBRARY, FILES AND CENTRAL REPORTING SERVICE

Plant Library

Library work volume and book statistics were as follows:

	January	February
Number of Books on order received	228	184
Number of books fully cataloged	290	178
Number of bound periodicals processed but not fully cataloged	97	4
Pamphlets added to the pamphlet file	123	21
Miscellaneous material received, processed, and routed (Including maps, photostats, patents, etc.)	25	81
Books and periodicals circulated	3,181	3,519
Unclassified reports processed	184	92
Unclassified reports circulated	226	284
Reference services rendered	1,714	1,794

	Main Library	W-10 Branch	108-F Branch	Total
Number of books	6,872	2,821	278	9,971
Number of bound periodicals	4,187	0	526	4,713

Work in the Plant Library proceeded on a routine basis. Figures on the circulation of books and periodicals indicated a 15% increase, and the number of technical reference services increased by another 5%. These figures reflect a continual increase for the fifth successive month in the volume of routine work handled by the Library.

The reference services rendered, of which a number of typical questions are listed below, continue to reflect the use of the Library's reference resources by all Divisions at Hanford:

Recommended methods for cleaning iron stains from porcelain.
Leakproof valves for a ten-inch diameter helium line.
The oxidation potential for the oxalate ion.
The cause of drift in BF_3 counting chambers.
Properties and characteristics of oil of citronella.
Information on ion chambers in the plateau region.
Information on fan characteristics.
Maximum allowable concentration of twelve isotopes in air, water, food, and soil.
Information on rotameters.
Will "Brimsto" be attacked by HF?

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The values to seven places of the sine, cosine, and tangent of 0° 6' 56".
Detection and determination of iron carbonyls.
Rapid determination of ruthenium.
Universities which offer courses on safety and safe practices in engineering or science.

The Kardex form used for the checking in and routing of the periodicals was revised. This new form will expedite the work of the periodicals clerks.

The Reference Librarian spoke to a meeting of the American Society for Engineering Education which met at Hanford on Feb. 9-10. The open and classified literature in the field of nuclear science was briefly covered.

Classified Files

Work volume statistics for the Classified Files were as follows:

	January	February
Documents routed	12,935	9,460
Documents issued	6,403	5,251
Reference services rendered	4,540	4,425
Registered packages prepared for offsite	268	272
Inter-area mail sent via transmittal	31,657	28,472
Holders of classified documents whose files were inventoried:		
(a) Because of normal perpetual inventory procedure	26	2
(b) Because of transfer of work assignment	3	3
(c) Because of termination	2	1
Inventory reductions:		
Copies of documents destroyed	3,177	1,780
Copies of documents downgraded	0	0
Copies of documents declassified	41	0
Classified documents located which were unaccounted for in previous inventory	35	32
Volume of unclassified mail handled by the 300 Area Mail Room	30,279	33,892

A revision of the A.E.C. Standard Distribution List (M-3679) is to be issued April 15, 1951, and a number of matters in this connection required attention.

A revision of the present category "Reactors," suggested by the A.E.C., was reviewed. This would divide the present "Reactors" category into "Production Reactors" and "Research Reactors," with the Hanford reactors and the Savannah River reactors falling in the former category. A suggested new Distribution List for the "Production Reactors" would be an expansion of the present distribution list for "Technology - Hanford Processes." This division appeared satisfactory. Also reviewed were Hanford Works copy requirements for the various categories. Some proposed changes in the Health and Biology category were under consideration at month end.

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Formal notification was received from the A.E.C. requesting compliance with their new Bulletin GM-176 setting forth procedures for the identification, servicing, and control of all classified research and development reports. This Bulletin, which has been in preparation for two years, was drafted at numerous conferences of the Technical Information Panel and at meetings of the Classified document custodians at A.E.C. sites. It represents the consensus of the soundest procedures in the field of classified document handling. With minor exceptions, procedures at Hanford are in line with those set forth in the Bulletin.

The inventory program is proceeding on schedule, although the number of field inventories decreased as effort was concentrated on inventory of the Classified Files units. Priority is being given to the inventory of the Formal Research and Development Reports, since these must be reported shortly in accordance with the new GM-176.

The reduction of classified document accountability by destruction of surplus copies continued. Classified Files holdings of the Plant Monthly Report, for instance, were reduced to two reference copies per issue, with the exception of those covering the last six months, for which greater demand exists. It is believed that destruction of classified documents, combined with declassification at the local level of non-technical classified documents, offers the most immediate and practical method of reducing our present classified document holdings.

Discussions were held with H. B. Lytz of the Kellex Corporation to complete arrangements for the inventory and transfer to Hanford of document accountability for the Job 11 classified documents. It appeared from this meeting in New York City that the originally planned complete inventory of the Job 11 documents is impractical because the documents are actively being used at four Kellex sites. Furthermore, Kellex has just completed an inventory of both Job 11 and Job 15 documents, and it would seem unjustifiably expensive to attempt to duplicate this work. For these reasons, it was agreed tentatively that it would be most practical for Hanford personnel to make a thorough spot-check of the classified document inventory list as submitted by Kellex, and if this proves accurate to accept the transfer of document accountability.

At the meeting of the Technical Information Panel in Oak Ridge, it was decided to set up certain basic committees to handle specific information problems. Proposed committees are on Classification and Declassification, Organizing and Servicing of Technical Information, Compartmentation of Technical Information, Publication and Dissemination of Technical Information, etc. It is planned to expand these committees where advisable to include other specialists in technical information work at the various sites. This reorganization resulted from the impracticability of attempting to carry out a meeting of the whole Panel the detailed studies required on many technical information problems. The committees will submit their recommendations to the Panel membership for approval and action by the A.E.C. This reorganization will permit the reduction of the number of Panel meetings to two annually, with additional meetings as required by the various committee groups.

Work was begun again on the completion of the "series file," for which the

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first steps were reported in October 1950. The basic reorganization of the series file was worked out then, and the special assignment clerk is now indicating the specific documents which comprise the various series breakdowns. It is planned as soon as this is completed to incorporate the present periodical report file into the numerical file, and to use the series card in the reports index as entry to the material. This is a further step in the change-over of the classified files to a straight numerical arrangement.

The main files room of the 300 Area Classified Files, Bldg. 3702, was expanded to include the hallway formerly to the south of this room. This relieves a critical space shortage, and provides more nearly adequate working conditions for the staff. Re-arrangement of the files and the work area, and transfer of the service counter to the center of the room, should result in smoother work flow and more efficient operation.

New percentages for the liquidation of the Classified Files operating costs were completed and submitted to the Cost Division. The present formula, based on the number of individuals in the various Divisions having access to Classified Information, appears to be equitable and has the additional advantage of being readily calculated.

The Chief Librarian of the Atomic Energy Commission visited the Classified Files and Library operations. He seemed pleased that an active destruction program on classified documents was underway, and that the inventory was progressing satisfactorily. The agenda for the A.E.C. Joint Conference on Document Control to be held in Chicago on March 15 and 16 was also discussed.

Preliminary plans were completed for an Information Service facility in the 200-W Area, to serve the increasing number of personnel located there, and reduce personal holdings of classified documents. The proposed facility would house primarily a branch of the Classified Files, but would include a small reference collection of technical books. Estimates were being prepared for inclusion in the construction budget for fiscal 1952.

Central Reporting Service

Work volume statistics for this Unit were as follows:

	January	February
Ditto masters run	672	673
Mimeograph stencils run	996	863
Ditto copies prepared	25,919	24,747
Mimeograph copies prepared	96,661	87,293
Formal Research and Development Reports issued	9	10
Reports abstracted	389	357

Operations and services proceeded routinely.

INVENTIONS

All Technical Services Division personnel engaged in work that might reasonably be expected to result in inventions or discoveries advise that,

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to the best of their knowledge and belief, no inventions or discoveries were made in the course of their work during February 1951 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(s)	Title
W. N. Carson, Jr.	Design of a Variable Potentiometer for Computer Equipment
W. N. Carson, Jr.	An Analog Computer

Signed _____
T. W. Hauff, Division Head

TWH:mcs

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MEDICAL DIVISIONS

FEBRUARY 1951

DECLASSIFIED

General

Personnel Changes

The roll increased from 282 to 288. The increase was in needed nurses.

Visits

Dr. B. C. Scudder attended the A. E. C. Division of Biology & Medicine Meeting in New York City.

Mr. O. E. Bakko attended a one day meeting of the Washington State Hospital Association in Seattle.

Five public health nurses attended a regional tuberculosis control meeting in Yakima.

Industrial

Employee physical examinations decreased from 2737 to 2346. Dispensary treatments decreased from 8211 to 7894.

Five major and 8 sub-major injuries were treated as compared to 6 major and 13 sub-majors for the previous month. No major and only one sub-major was sustained by G. E. employees.

"Overweight" was the very worthwhile health topic for the month.

An employee with technical overexposure to P-10 was hospitalized for one da for prophylactic treatment and specimen collection.

Large scale innoculation of employees against influenza was considered but not done.

Sickness absenteeism (weekly employees) increased by 0.26% to 2.43%, while total absenteeism increased by 0.34% to 3.04%. Sickness absenteeism (monthly employees) increased by 0.03% to 1.10%, while total absenteeism remained constant at 1.46%.

Kadlec Hospital

The average daily census increased from 98.1 to 102.3 (90.7 adults, 11.6 infants). The census was 85.7 a year ago.

Daily adult census: Maximum 109, Minimum 67.

Occupancy percentage was very high at 88.1% for all adult services. The occupancy was even higher in the mixed services - 94.6%. Such high rates indicate a need for further study of bed requirements as little additional bed space for the mixed services is included in the present hospital construction program.

Nursing hours per patient day were 3.2 for the mixed services, and 4.57 for obstetrics.

The medical-surgical nursing station was divided into two units, one for medicine and one for surgery. This was necessary because of the continued high census.

Mr. Bakko and Mr. Smith surveyed a number of hospitals in Washington and Oregon whose size and location was comparable to Kadlec. This survey will assist in making proper charges for services and in long range budgeting.

Public Health

The incidence of communicable disease dropped by 50%, but home nursing visits were up 50%, probably indicating a rise in "flu-like" upper respiratory infections.

The level of sanitation of water, milk, sewage disposal, and food establishments was generally satisfactory.

DECLASSIFIED

MEDICAL DIVISIONS

FEBRUARY 1951

DECLASSIFIED

Costs (January)

Medical Divisions' operating costs, before assessments to other divisions, were as follows:

	December	January	January Budget
Industrial Medicine (Oper. Div.)	39,573	41,401	40,674
Public Health	11,475	11,072	11,070
Kadlec Hospital (net)	24,450	24,204	25,000
Hospital assessments to other divisions and workmen's compensation	3,418	3,056	3,400
Subtotal - Operations - Medical Divisions	78,916	79,733	80,144
Construction Medical (Industrial & Public Health)	12,539	12,085	13,380
Total Operations and Construction	91,455	91,818	93,524

The net cost of operating the Medical Divisions, before assessments to other divisions, was $91,818., an increase of only $363., and $1706. below the budget figure.

While Kadlec Hospital revenue increased by $6,322., expenses increased almost as much due to the following: (1) increased salary costs $1515. - two additional working days, additional overtime; (2) increase in transferred charges from other divisions $3505.; (3) increase in supplies, other charges and continuity of service amounting to $694.

Public health costs changed little.

Industrial medical operations costs increased by $1862., as detailed in thi. divisions cost analysis.

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MEDICAL DIVISIONS

FEBRUARY 1951

DECLASSIFIED

Industrial Medical Division

General

Physical examinations decreased from 2737 in January to 2346 in February. Dispensary treatments also decreased from 8211 to 7894. There were no G.E. major injuries and only one sub-major injury. Subcontractor employees sustained 5 major injuries and 7 sub-major injuries.

Dr. Scudder attended the New York A. E. C. General Information Meeting for laboratory and medical directors.

New equipment for testing hearing was obtained, and the instrument will be used for screening and measuring hearing on the pre-employment and annual examinations.

One exposure to P^{10} occurred, and hospitalization for one day for sample collection and fluid administration was carried out.

The Chemical Hazards Committee met on Feb. 27th. A report on the status of carbon monoxide exposure in the 700-1100 areas was discussed, and formal recommendations for improvement of working conditions will be made. Survey and preliminary studies were begun during the month on ditto fluids and solvents.

The Health Activities Committee met on Feb. 15th. The health topic on "Obesity" was presented. Material on this subject was prepared for distribution to all employees.

Absenteeism (weekly employees) due to all causes increased by 0.34% to 3.04%, while absenteeism due to sickness increased 0.26% to 2.43%. Absenteeism (monthly employees due to all causes remained constant at 1.46%, while absenteeism due to sickness increased 0.03% to 1.10%.

The net cost of operations increased $1773. Salary costs remained constant. The increase resulted from (1) two months' consultant fees totaling $400. No payment was made in December. (2) Household and property costs increase $1186. due to the purchase of equipment for the furnishing of two reception rooms costing $984. and heavier purchases of other miscellaneous supplies totaling $202. (3) 40% of the clinical laboratory work done during January was for Industrial Medical. This is 4% more than during December, and accounts for an approximate increase of $400. in clinical laboratory costs. Nursing services were reduced $624. since one less nurse was provided for Industrial Medical, and less nursing supplies were purchased during the month.

Transferred charges from other divisions increased $470. due primarily to increased charges for H. I. Development since charges are now being made for the services of an industrial hygienist in the area performing experimental work for the Medical Divisions, and to increased charges for ambulance service and fire prevention service. Laundry charges to Industrial Medical were reduced $690. due to a reallocation of laundry costs resulting from a study recently made.

Assessments for Industrial Medical operations costs are now being made to other divisions on a service rendered basis.

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MEDICAL DIVISIONS

FEBRUARY 1951

Industrial Medical Costs:

	Increase or (Decrease) over Previous Month	January	December	January Budget
Administration	$ 718	$ 8460	$ 7742	$ 8937
Household & Property	1186	2606	1420	1300
Professional Services	512	24891	25403	26250
Total Direct Expense	1392	35957	34565	36487
Accrual for Public Liability Claims	0	150	150	0
Transferred from Other Divisions	470	5913	5443	5130
Less: Revenue	34	619	585	943
Workmen's Compensation	55	642	587	700
Net Cost of Operations	1773	40759	38986	39974

Physical Examinations	January	February	Year to date
Operations			
Pre-employment	288	232	520
Rehire	48	85	133
Annual	503	314	817
Interval	230	231	461
Visitor	0	1	1
A. E. C.	6	25	31
Re-examination and rechecks	176	88	264
Termination	92	142	234
Sub-total	1343	1118	2461
Sub-contractors			
Pre-employment	407	322	729
Rehire	397	324	721
Recheck	106	77	183
Termination & Transfer	484	505	989
Sub-total	1394	1228	2622
Total Physical Examinations	2737	2346	5083
Laboratory Examinations			
Clinical Laboratory			
Government	30	88	118
Pre-employment, termination, transfer	7198	5725	12923
Annual	2600	1617	4217
Recheck (Area)	1238	1216	2454
First Aid	7	23	30
Clinic	2108	2804	4912
Hospital	4413	4820	9233
Public Health	41	14	55
Total	17635	16307	33942
X-Ray			
Government	3	11	14
Pre-employment, termination, transfer	1292	921	2213
Annual	654	335	989
First Aid	160	141	301
Clinic	242	250	492
Hospital	234	234	468
Public Health	15	11	26
Total	2600	1903	4503

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MEDICAL DIVISIONS

FEBRUARY 1951

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Electrocardiographs	January	February	Year to date
Industrial	48	20	68
Clinic	4	6	10
Hospital	36	25	61
Total	88	51	139
Allergy			
Skin Tests	8	1	9
First Aid Treatments			
Operations			
New Occupational Cases	331	275	606
Occupational Case Retreatments	1073	880	1953
Non-occupational Treatments	2838	2662	5500
Sub-total	4242	3817	8059
Construction			
New Occupational Cases	689	644	1333
Occupational Case Retreatments	2427	2472	4899
Non-occupational Treatments	808	945	1753
Sub-total	3924	4061	7985
Facility Operators	45	16	61
Total First Aid Treatments	8211	7894	16105
Major Injuries			
General Electric	1	0	1
Sub-contractors	5	5	10
Total	6	5	11
Sub-major Injuries			
General Electric	0	1	1
Sub-contractors	13	7	20
Total	13	8	21

Absenteeism Report - Weekly Employees

	Male	Female	Total	Percent Absenteeism	Comparison with Previous Month
No. days absent due to all causes	2460	1202	3662	3.04%	0.34% more
No. days absent due to sickness only	1935	990	2925	2.43%	0.26% more

Avg. days absent due to sickness by each male employee..... .43 day or 430 days/1,000 employees

Avg. days absent due to sickness by each female employee..... .64 day or 640 days/1,000 employees

Avg. days absent due to sickness by all employees..... .49 day or 490 days/1,000 employees

Comparison of present year-to-date total absenteeism figure with the 1950 figure shows an increase of 0.17%.

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MEDICAL DIVISIONS

FEBRUARY 1951

DECLASSIFIED

Absenteeism (Weekly Employees) by Divisions:

Employee & Community Relations	2.09%
Design & Construction	2.65%
Manufacturing	2.83%
Municipal, Real Estate & General Service	2.88%
Medical	3.07%
Technical	3.16%
Plant Security & Services	3.21%
Health Instrument	3.38%
General Accounting	4.01%
Purchasing & Stores	4.40%

Absenteeism Report - Monthly Employees:

	Male	Female	Total	Percent Absenteeism	Comparison with Previous Month
No. days absent due to all causes	532	32	564	1.46%	No change
No. days absent due to sickness only	408	17	425	1.10%	0.03% more

Avg. days absent due to sickness by each male employee	.22 day or 220 days/1,000 employees
Avg. days absent due to sickness by each female employee	.34 day or 340 days/1,000 employees
Avg. days absent due to sickness by all employees	.22 day or 220 days/1,000 employees

Absenteeism (Monthly Employees) by Divisions:

Employee & Community Relations	0.56%
General Administrative	1.14%
Manufacturing	1.19%
General Accounting	1.35%
Design & Construction	1.38%
Plant Security & Services	1.51%
Technical	1.55%
Municipal, Real Estate & General Services	1.79%
Purchasing & Stores	1.90%
Health Instrument	1.90%
Medical	2.24%

Absenteeism Investigation	January	February	Year to date
Total No. calls requested	24	6	30
Total No. calls made	24	6	30
No. absent due to illness in family	0	0	0
No. not at home when call was made	6	0	6

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Hospital Division

General

The average daily adult hospital census increased from 86.9 to 90.7, as compared to 74.0 a year ago. This represents an occupancy percentage of 88.1%, broken down as follows: Mixed Service (Medical, Surgical, Pediatrics) - 94.6%; Obstetrical Service - 61.0%. The minimum and maximum daily census during the month ranged as follows:

	Minimum	Maximum
Mixed Service.....	58	94
Obstetrical Service.....	9	20
Total Adult.....	67	109

The average daily newborn census increased from 11.2 to 11.6, as compared to 11.7 a year ago.

Nursing hours per patient day:

Medical, Surgical, Pediatrics....	3.2
Obstetrical.....	4.57

The ratio of hospital employees to patients (excluding newborn) for the month of January was 1.63. When newborn are included, the ratio is 1.44.

The net expense of the Richland community medical program for January, 1951 was $24,204., as compared to $24,450. for December, 1950. Breakdown is as follows:

Kadlec Hospital net expense $ 23,956.

This is a decrease of approximately $250. as compared to December. Total expenses increased about $5700. due primarily to: (1) increased census resulting in greater salaries and supply costs; (2) increased transferred charges from other divisions due primarily to a reallocation of laundry assessments between medical divisions, charge for patrolmen's service in attending mental patients, and increased maintenance costs. However, revenues increased due to higher patient census approximately $6300. and more than offset the higher expenses. Increased workmen's compensation costs and decreased assessments to other divisions accounted for the remainder.

Clinic net expense $ 248.

This represents only an $8. increase as compared to December, since time spent on clinic records remained approximately the same.

Due to a continued high census requiring additional nursing personnel, it became necessary to establish a nursing sub-station for the medical service separate from the central nursing station, which had previously been used as both a surgical and medical nursing station. This arrangement has resulted in greater efficiency on the nursing service.

During the month of February, the nursing course in Ward Management, described in last month's report, was successfully concluded.

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General (continued)
In order to secure comparative operating cost data, personnel figures and other hospital information for use in preparing the Kadlec Hospital budget for the fiscal years 1952 and 1953, Mr. M. J. Smith, Accounting Supervisor, and Mr. O. E. Bakko, Assistant Superintendent, began a survey of a number of hospitals in Washington and Oregon. This survey will be completed and summarized early in March.

Mr. O. E. Bakko attended the one day mid-year meeting of the Washington State Hospital Association in Seattle.

Kadlec Hospital	January	February	Year to date
Average Daily Adult Census	86.9	90.7	88.7
Medical	26.8	23.0	25.0
Surgical	29.9	37.9	33.7
Pediatric	19.5	17.6	18.6
Obstetrical	10.8	12.2	11.4
Average Daily Newborn Census	11.2	11.6	11.4
Maximum Daily Census:			
Mixed Services	94	94	
Obstetrical Service	17	20	
Total Adult Census	106	109	
Minimum Daily Census:			
Mixed Services	54	58	
Obstetrical Service	6	9	
Total Adult Census	64	67	
Admissions: Adults	559	511	1070
Discharges: Adults	534	515	1049
Newborn	66	64	130
Patient Days: Adult	2695	2540	5235
Newborn	347	326	673
Total	3042	2866	5908
Average Length of Stay: Adults	4.8	5.0	4.9
Newborn	6.1	5.2	5.6
Occupancy Percentage: Adults	84.3	88.1	86.1
Newborn	88.0	82.9	81.4
(Occupancy Percentage based on 103 adult beds and 14 bassinets.)			
Avg. Nursing Hours per Patient Day:			
Medical, Surgical, Pediatrics	2.90	3.20	
Obstetrics	5.51	4.57	
Avg. No. Employees per Patient (excluding newborn)	1.63		
Operations: Major	89	98	187
Minor	121	76	197
Eye, Ear, Nose, Throat	89	76	165
Dental	3	3	6
Births: Live	57	63	120
Still	0	1	1
Deaths	5	4	9
Hospital Net Death Rate	0.67%	0.20%	0.40%
Net Autopsy Rate	60.0%	0	40.0%
Discharged against advice	2	2	4
One-day Cases	101	100	201

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MEDICAL DIVISIONS

FEBRUARY 1951

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	January	February	Year to date
Admission Source:			
Richland	76.6%	74.2%	75.4%
North Richland	9.3%	13.9%	11.5%
Other	14.1%	11.9%	13.1%
Admissions by Employment:			
General Electric	73.5%	73.0%	73.2%
Government	3.0%	2.5%	2.7%
Facility	3.6%	5.1%	4.4%
Sub-contractors	13.8%	14.5%	14.2%
Schools	1.6%	1.4%	1.5%
Military	3.2%	2.5%	2.8%
Others	1.3%	1.0%	1.2%
Hospital Outpatients Treated	584	336	906
Physical Therapy Treatments			
Clinic	187	181	368
Hospital	128	64	192
Industrial: Plant	142	154	296
Personal	13	26	39
Total	470	425	895
Pharmacy			
No. of Prescriptions Filled	3013	3072	6085
No. of Store Orders Filled	718	760	1478
Patient Meals			
Regulars	3872	3841	7713
Specials	1284	1126	2410
Lights	1	21	22
Softs	1897	1560	3457
Tonsils & Adenoids	189	190	379
Liquids	197	198	395
Surgical Liquids	61	82	143
Total	7501	7018	14519
Cafeteria Meals			
Noon	1425	1240	2665
Night	277	201	478
Total	1702	1441	3143

Public Health Division

General

The communicable diseases reported during the month dropped approximately 50%, manifested chiefly by the decline in the incidence of chickenpox. The paratyphoid "B" case reported is being investigated and studies have not been completed to date. The preliminary epidemiological report indicates that the patient involved attended a party outside of the area where three other cases occurred which are not project connected. The division is cooperating with other health authorities in investigating this occurrence. Scarlet fever remains at approximately the same level. Although there is evidence of an increase in upper respiratory diseases in the surrounding area, our reports do not reflect any local increase for this month.

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P. H. General (continued)
Home nursing visits increased approximately 50%, especially in the area of maternal, infant, school and morbidity services. This might indicate a rise in morbidity in the community which has not been reported.

Five staff nurses attended a regional tuberculosis control meeting in Yakima. A clinic was held for handicapped children who are participating in the orthopedic program of the Richland School District. This service is jointly sponsored by the State Health Department, Richland School District, and the Public Health & Welfare Division.

Resazurin tests were run on dairy herds supplying milk to this area. The tests proved satisfactory with only one producer being warned of an unsatisfactory supply out of 107. Three new producers have met Grade A requirements of the Washington State Health Department and were approved by this department.

Plans have been made for the 1951 mosquito control program and new mobile equipment has been made available by the Transportation Division. Due to personnel changes, a new control crew will have to be trained this season.

Restaurants in this area were inspected and found to be in compliance with county standards. Approximately 75% of the personnel in the grocery stores have had blood tests and chest x-rays.

A new recharge basin has been constructed north of Richland to increase the output of two wells augmenting the sanitary water supply.

During February, the Social Service Counselors gave assistance to 30 families having difficulty with family relationships; to 18 persons with problems of personal adjustment; to 16 families in need of help with medical plans and to 3 families needing financial assistance.

Education	January	February	Year to date
Pamphlets distributed	14436	14955	29391
News Releases	0	0	0
Staff Meetings	1	2	3
Classes	0	1	1
Attendance	0	14	14
Lectures & Talks	6	14	20
Attendance	302	143	445
Films shown	1	12	13
Attendance	75	624	699
Community Conferences	35	51	86
Radio Broadcasts	0	0	0
Immunizations			
Diphtheria	82	1	83
Diphtheria Booster	10	65	75
Tetanus	427	14	441
Tetanus Booster	9	109	118
Pertussis	8	1	9
Pertussis Booster	1	55	56

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MEDICAL DIVISIONS

FEBRUARY 1951

Immunizations (continued)	January	February	Year to date
Typhoid	9	4	13
Typhoid Booster	0	0	0
Smallpox	11	2	13
Smallpox Revaccination	20	2	22
Tuberculin Test	0	7	7
Social Service			
Cases carried over	80	73	153
Cases admitted	13	20	33
Cases closed	20	9	29
Remaining case load	73	84	157
Activities:			
Home Visits	22	18	40
Office Interviews	226	219	445
Conferences	78	89	167
Meetings	19	11	30
Sanitation			
Inspections made	188	130	318
Conferences held	14	22	36
Bacteriological Laboratory			
Treated water samples	200	153	353
Milk samples (inc. cream & ice cream)	8	8	16
Other bacteriological tests	287	261	548
Total	495	422	917
Communicable Diseases			
Chickenpox	161	83	244
Erysipelas	7	0	7
German Measles	0	10	10
Impetigo	0	2	2
Influenza	0	1	1
Mumps	0	2	2
Paratyphoid "B"	0	1	1
Pinkeye	3	0	3
Ringworm	0	2	2
Roseola	10	2	12
Scabies	1	0	1
Scarlet Fever	10	12	22
Tuberculosis	1	0	1
Total	193	115	308
Total No. Nursing Field Visits	533	839	1372
Total No. Nursing Office Visits	143	125	268

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HEALTH INSTRUMENT DIVISIONS

FEBRUARY 1951

Summary

The net force was reduced by one. Two Class I and two Class II Special Hazards Incidents were investigated. This was probably commensurate with the increased tempo of operations throughout the plants.

The routine program of environmental hazard control clearly revealed contamination due to the Las Vegas tests. Other phases of monitoring, including biology, showed no deviation from expected patterns.

In bioassay, the apparent body deposition of plutonium in two employees was confirmed, with the reduction in excretion rates in agreement with the Langham formula. The tritium activity density in the urine of an employee involved in one of the Class II incidents was about 400 μc per liter, the highest obtained to date.

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HEALTH INSTRUMENT DIVISIONS

FEBRUARY 1951

Organization

The composition and distribution of the force as of 2/28/51 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	7	29	4	5	19	16	4	-	88
Clerical	-	-	3	1	1	3	3	4	-	15
Others	17	15	54	9	34	68	58	15	8	278
Total	22	23	94	16	44	102	89	29	8	427

* includes chemists, biologists, etc.

Number of Employees on Payroll	February 1951
Beginning of month	428
End of month	427
Net decrease	1

Added to the roll were a technical graduate, an inspector, 3 laboratory assistants, 2 personnel meters clerks, a general clerk, and a moto-messenger.

Removed from the roll were an aquatic biologist, 2 technical graduates, an inspector, a secretary, a steno-typist, 2 laboratory assistants, and 2 personnel meters clerks.

General

There were two Class 2 Special Hazards Incident Investigations. One concerned overexposure during removal of a ruptured slug from a pile, under very short time limits. The other involved tritium intake in an operator to a level of ~ 400 μc/liter of body fluids. In neither case was the exposure sufficiently great to create real concern for the welfare of the individual concerned. In fact, the first case was probably not an overexposure within the intent of national and international recommendations. The doubt arises from the detailed interpretation of the approximate identity of 0.3 r in air, 0.5 rep on the skin, and 0.3 rep at the bloodforming organs.

Two Class I incidents were also reported. Incorrect tie-in of duct work to a laboratory glove box resulted in high plutonium content in the air in one case. In the other, the charging operation was begun while people were still inside the canyon.

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The subcommittee on internal emitters of the National Committee on Radiation Protection has finally reached agreement (or compromise) on the permissible exposures to the principal radioisotopes and heavy elements. Although the formal report is not yet available, the appropriate values will be considered to be in effect at Hanford Works. Distribution of the new levels will be made shortly to the groups concerned.

Two programs are underway in the divisions, which should ultimately lead to substantial savings:

1. Unit costs of the operations are being developed, so that the protection benefits may be weighed against the cost. Typical is the current hand score recording program, which is believed to be intrinsically superior to that followed at most other locations. Evidently, equal real protection to the employee can be gained if one could be assured of full cooperation of every employee in making the required hand checks, and in correcting all high readings. The present system demonstrates the divergence from this standard, and there is a probability that the divergence would increase in the absence of written records. This loss plus the additional time spent by supervision in promoting full utilization of the hand counters has to be factored, somehow, against the present clerical costs.

   In rare cases, a direct comparison with commercial costs can be made. For film badges, the Hanford cost is less than half that of a similar outside operation, and there is good reason to believe that the technical standards of the local operation are quite superior.

2. Some of the permissible exposure limits are understood much more clearly today than when the general Hanford system was established. All qualified workers in the field recognize that it is sound practice to preserve a reasonable safety factor in all exposures. The problem lies in converting the qualitative expression "reasonable" into a number. Where, in the opinion of the divisions, the permissible limit is well founded, such a number has generally been taken as between 1 and 10. It is proposed to stabilize on 5 in such cases. Such a step will permit tangible savings in the exposure recording system, and intangible savings in the acceleration of some SWP work.

   In other cases, limits previously uncertain to a factor of 100 are now believed to be known within a factor of 10. The Hanford biology program is now beginning to provide data which sharpens some of these limits. Savings in design and construction costs, in the provision and maintenance of protective equipment, and in manpower should all result from this program.

It will be evident that no change is contemplated that will result in less real protection to an employee. Also, any major change will have to be thoroughly discussed by the Special Hazards Committee before it is introduced.

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The following trip was reported:

H.A. Kornberg - To attend AEC Bio-Medical Directors Meeting in New York City.

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

	January					February					1951 To Date
	B	D	F	H	Total	B	D	F	H	Total	
Special Work Permits	596	1177	736	700	3209	685	1150	743	1120	3698	6907
Routine & Spec.Surveys	441	748	638	608	2435	607	717	572	648	2544	4979
Retention Basin	84	209	47	95	435	84	211	84	86	465	900
Air Monitoring samples	167	195	106	139	607	160	262	111	103	636	1243

Retention Basin Effluent

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

	100-B	100-D	100-DR	100-F	100-H
Power level (MW)	400	375	480	380	500
Average beta dosage-rate (mrep/hr)	1.7	1.7	2.3	1.6	2.4
Average gamma dosage-rate (mr/hr)	3.3	3.5	4.5	3.8	4.0
Average total dosage-rate (mrep/hr)	5.0	5.2	6.8	5.4	6.4
Average integrated dose in 24 hrs.(mrep)	120	125	163	130	154
Maximum integrated dose in 24 hrs.(mrep)	142	156	192	168	199
Maximum integrated dose in 24 hrs.(mrep)1951	142	156	192	168	199

100-B Area

Pile and Associated Buildings

No unusual condition was encountered during this period.

P10 Operation - 108 Building

Five employees gave urine samples greater than 20 μc/liter of tritium oxide; the maximum sample was 407 μc/liter. This incident is being investigated on a Class II basis.

Spread of contamination to the operating gallery, a truckbed, a road, and the burial ground occurred as a result of loose contamination control. Decontamination is in process.

Metallurgical Laboratory - 111 Building

Exposure rates up to 2 rep/hr were encountered when the ruptured slug from tube 3188-R in the DR Pile was removed and photographed.

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100-D Area

105-D Pile and Associated Buildings

Contamination up to 1.2 rep/hr resulted when dummies from a process tube were discharged directly on to the 10-foot level catwalk. Low level contamination was found on the floor of the work area passageway, blue tool room, and corridors throughout the building, during a shutdown, as a result of improper use of the step-off pads at the cushion chamber corridor and the work area.

105-DR Pile and Associated Buildings

The 107-DR east basin was contaminated up to 750 mrep/hr when the process tubes were purged with the pile operating at 200 MW. Purge and effluent water was diverted to the emergency ditch during this period.

Active gas immediately following a pile shutdown gave readings up to 1.5 rep/hr in the charge elevator, work area corridor, and discharge elevator machinery room. Protective measures were enacted until the affected air was exhausted from the building.

100-F Area

Pile and Associated Buildings

Following the extended shutdown, dosage-rates in front of tube #0263 of 43 mrem/hr (5160 n/cm^2/sec) slow neutrons; and 600 mr/hr gamma, resulted from inadequate shielding.

Dosage-rates up to 6 rep/hr including 300 mr/hr were observed in the lower near corner of the front face as a result of a gas leak in that vicinity. Exposure rates up to 3 rep/hr were encountered while attempting to locate the leak.

Biology Farm and Building

No unusual condition was reported during this period.

P-11

Four of the 40 air samples taken were above 10^{-11} µg Pu/cc. The maximum sample was 5.1×10^{-11} µg Pu/cc taken from the hood ventilator duct during the handling of process solution within the hood.

100-H Area

Three pieces ruptured while being irradiated in the pile during this period, each necessitating shutdown time for removal. Two were regular pieces, and one a P10 piece. The first rupture occurred in tube #3270, and was discharged

7

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with exposure rates up to 7.5 rep/hr to the hands, and 3 rep/hr to the body, without overexposure. The second rupture occurred in tube #2562, and was discharged after considerable difficulty was encountered with the spline removing the metal from the rear. Exposure rates up to 88 r/hr were encountered. One overexposure resulted to a "P" Div.supervisor; and investigated as a Class II Special Hazards Incident. The third rupture occurred in tube #3177, and was discharged during a Critical Y power outage, with exposure rates up to 7 rep per hour at 1 inch, including 35 mr/hr reported.

200 Areas - T and B Plants

General Statistics

	January					February					1951
	T	231	234-235	B	Total	T	231	234-235	B	Total	To Date
Special Work Permits	635*	36	296	367	1334	355	31	249	320	955	2289
Routine & Spec.Surveys	556	391	406	559	1912	481	390	575	520	1966	3878
Air Monitoring samples	544	612	1436	682	3274	417	565	1247	557	2786	6060
Thyroid Checks	38	--	--	52	90	75	--	--	27	102	192

* Corrected, previously reported as 958

Canyon Buildings

In the T Plant, 110 of 280 air samples showed results above 10^{-12} µg Pu/cc, with a maximum of 1.6×10^{-8} µg Pu/cc in the canyon with the blocks removed from 17L; 94 samples were above 10^{-10} µc f.p./cc, with a maximum of 2.8×10^{-8} µc f.p./cc.

In the B Plant, 90 of 407 air samples showed results above 10^{-12} µg Pu/cc, with a maximum of 1.2×10^{-10} µg Pu/cc in the canyon; 127 samples were above 10^{-10} µc f.p./cc, with a maximum of 2.4×10^{-8} µc f.p./cc. A blowback at the 16-1E chemical addition tank caused air concentrations up to 2.6×10^{-9} µc f.p./cc in the operating gallery.

Concentration Buildings

Radiation conditions were normal.

Waste Areas

In the T Plant, preliminary investigation indicated a plugged line between the 202-T tank and crib, necessitating further investigation before the situation is alleviated.

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In the B Plant, it was necessary to reroute metal waste in the 102 BX cascade when a plug in the line between the 102 BX and 103 BX tanks was suspected. Probing of the dry wells around the 102 BX tank revealed significant contamination below the 70 foot level, indicating a possible leak in that tank. Liquid in this tank is being transferred to the 103 BX tank through a temporary above-ground line.

Plant Laundry

Three of the 45 air samples showed positive results, with a maximum of 9.1×10^{-12} µg Pu/cc obtained while processing canyon clothing.

General

All thyroid checks were below the warning level.

Isolation Building

Ninety of the 565 air samples taken were above 10^{-12} µg Pu/cc; the maximum of 1.2×10^{-10} µg Pu/cc was obtained on the 903 duct system. Eighty-six unregulated items and six floor locations were found contaminated. There were two cases of skin contamination, and both were successfully reduced. The maximum level of gamma radiation encountered was 130 mr/hr on PR containers.

Development Laboratory - 222-U

Four floor locations were found contaminated. Two cases of hand contamination were reported, and both successfully reduced.

Purification Building

Air Sample Results

Two hundred and forty-seven of 1247 air samples were above 10^{-12} µg Pu/cc; the maximum sample of 5.3×10^{-8} µg Pu/cc was obtained in the ducts after the Primary Filter.

234 Building - Operating Sections

Decontamination efforts have reduced the contamination in room 222, as a result of the blow-back reported last month; however, considerable contamination still exists.

235 Building - Operating Section

No unusual condition was reported.

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9

General Building

The plutonium concentration in the discharge air for the 26-inch vacuum

exhaust averaged 5.4×10^{-11} µg/cc.

200 Areas Control Laboratories

	T	B	231	234 235
Items contaminated - not regulated	190	109	115	73
Skin contamination - alpha	0	5	3	2
Skin contamination - beta	1	3	-	-
Contaminated floor locations	37	19	7	21

In the T Plant, monitoring assistance was furnished while running seven process samples, with a maximum exposure-rate of 16 rep/hr at 12 inches reported during the removal of a 13-4BP pipette. A blow-back occurred in the room 6 glove box causing air concentrations of plutonium up to 2.1×10^{-7} µg/cc. This incident was investigated formally.

In the B Plant, waste shipment from the 300 Area was slurped with a maximum dosage-rate of 6 rep/hr including 3 r/hr at 24 inches.

In the Isolation Building, floor contamination resulted in room 33 when an open carton of used dilution flasks was dropped.

In the Purification building, positive air samples in room 153 with a maximum of 5.7×10^{-12} µg Pu/cc are still unexplained.

Particulate contamination in particles per 1000 cubic meters was as follows:

Location		January	February
222-T	Outside	43	65 *
	Hallway	100	78
	Room 7	360	230
222-B	Outside	27	110 *
	Hallway	120	98
	Room 7	770	410

* Outside figures are higher for this period as a result of an abnormally high count over a small portion of time. This correlated with the Las Vegas experiments.

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300 Area

General Statistics

	January	February	1951 to Date
Special Work Permits	83	102	185
Routine & Spec.Surveys	260	246	506
Air Samples	183	248	431

Metal Fabrication Plant

Sixty-eight of 106 air samples were above 5×10^{-5} µg U/cc; the maximum of 5.7×10^{-3} µg U/cc was obtained while unloading rods.

Test Pile Building

Radiation conditions were normal.

Technical Building

Constant monitoring was given during the removal of irradiated sulphur from cadmium capsules with radiation levels up to 800 mrep/hr at 2 inches reported. Monitoring assistance was given during the machining of irradiated graphite out of aluminum tubes with dosage-rates up to 7.5 rep/hr, including 2 r/hr at two inches.

Hand Score Summary

There were 38,748 alpha and 45,267 beta scores reported. About 0.08% of the alpha, and about 0.1% of the beta scores, were high. No attempted reduction was indicated for two high alpha scores in 221-B, and three high alpha scores in 222-B. Where decontamination was attempted, it was successful except one high alpha score reported in the 313 Area.

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PERSONNEL METERS

Pencils

	100-B	100-D	100-F	100-H	E&N 200-	200-W Const.* 200-W 3,646*	300	Total	1951 To Date
Pencils Read	15,477	15,142	13,445	9,534	18,650	35,919	32,031	143,844	304,836
Single Readings (100 to 280 mr)	13	27	15	16	20	79	19	189	385
Paired Readings (100 to 280 mr)	0	0	1	1	0	0	0	2	5
Single Readings (Over 280 mr)	29	12	26	17	26	76 8*	36	230	535
Paired Readings (Over 280 mr)	0	0	0	1	0	0	1	2	3
Lost Readings	0	1	1	1	1	2	0	6	19

Of the four significant pencil readings reported, two were confirmed by film badge results - one of which constituted an overexposure.

Investigation of lost readings revealed no possibility of an overexposure.

Badges

	100-B	100-D	101-P,P-11 100-F	100-H	200-E	T.R.T. 200-N	200-W	300	Total	1951 To Date
Badges Processed	2238	2208	2569	2031	2143	433	4124	5912	21,638	48,113
Number Readings (100 to 300 mrep)	16	40	35	72	31	0	61	104	359	770
Number Readings (301 to 1500 mrep)	0	0	1	13	0	0	0	2	16*	116
Number Readings (Over 1500 mrep)	0	0	0	0	0	0	0	0	0	0
Lost Readings	2	1	4	1	0	0	4	0	12	21

*Of the 16 readings over 300 mrep for beta but below 1500 mrep, only 3 were above 300 for gamma.

Lost Readings were accounted for as follows:

Lost in processing	7
Badge lost in area	1
Contaminated badge (destroyed by Survey)	3
Recovered lost badge	1
Total	12

Investigation of the above lost readings indicated no possibility of an overexposure.

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Badge Resume, Construction Areas

	200-W Const.	200-E Const.	Total	1951 To Date
Badges Processed	3,303	2,001	5,304	12,013
Number Readings (100 to 300 mrep)	1	0	1	45
Number Readings (300 to 1500 mrep)	0	0	0	21
Number Readings (Over 1500 mrep)	0	0	0	0
Lost Readings	0	1*	1	1

*Badge lost in area.

Total badges processed 1951,	Operation	48,113
	Construction	12,013
	Total	60,126

In addition to the badge program, a total of 1,859 items of non-routine nature was processed during the month.

Slow Neutron Pencil Summary

	100-B	100-D	100-DR	100-F	100-H	Total	1951 To Date
Number of pairs issued	45	78	47	90	375	635	1,142
Number of significant readings	0	0	7	6	11	24	24
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	300	Total	1951 To Date
Personnel	21	73	5	96	46	0	241	573
Special	0	2	1	0	20	5	28	52

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CONTROL AND DEVELOPMENT DIVISION

CONTROL GROUPS

Site Survey

Activity densities of alpha and beta emitters in drinking water and test wells did not deviate significantly from past results. Levels of radioactive contamination in the Columbia River remained the same; the highest measured activity density was 7.4×10^{-6} μc/cc in a river sample taken from near the south bank of the river at Hanford. Eight samples taken from the Columbia River at McNary Dam averaged about 5×10^{-7} μc/cc; at Pasco, the average activity density was 9.9×10^{-7} μc/cc.

A definite increase in the number of active particles measured in the atmosphere was noted during the month. By checking the filter-scaler units, it is estimated that this increase was first noted about 6 A.M. Friday, February 9,1951, and apparently passed by about 6 P.M. Saturday, February 10; these times are in reference to air monitor units checked inside the 200-W Area. These increases were noted at all filter stations, including Richland, Benton City, and many off-area locations. Increases noted were quite apparent; for example, normally, at the Meteorology Tower, from 0.2 to 4×10^{-3} particles per cubic meter are measured; for the week ending February 9, from 0.28 to 0.39 particles per cubic meter were measured. Complete correlations with locations, particles found, and meteorological effects have not been made until data for weeks ending February 16 and 23 are available. These particles are apparently the result of recent atomic explosions at the Nevada testing grounds. The somewhat higher dosage-rates noted for detachable ionization chambers may be attributed to deposition of active particles on the chambers; the highest chamber reading noted was 2.1 mrep/24 hours, as measured at Route 3, Mile 1. Corresponding increases were noted for filterable beta emitters in air; the higher monthly averages were all weighted by the abnormally high readings noted for filters removed for the week ending February 9. Increases by factors of 2 to 5 over last month's levels were measured during February. The highest measured value was 1.1×10^{-11} μc/cc inside the 200-W Area; the values in Richland and Pasco were 8.3×10^{-13} and 2.2×10^{-12} μc/cc, respectively. I^{131} concentrations in the atmosphere did not materially change from those measured last month.

I^{131} on vegetation decreased by factors of 2 to 3 over last month at most sampling locations. Highest activity density continues to be measured at the 200-W Area Gatehouse; the average for the month was 1.1×10^{-3} μc/gram, and the maximum was 3.2×10^{-3} μc/gram. Non-volatiles activity on vegetation increased during the month; samples taken from Rattlesnake Mountain averaged 7×10^{-4} μc/gram; in the vicinity of the Separations area, the average ranged from 5×10^{-5} μc/gram to 1×10^{-4} μc/gram; in the vicinity of Prosser and McNary Dam, this average was about 6×10^{-5} μc/gram. This increase was attributed to the fallout of the active particles in the cloud apparently from the Nevada test site.

The activity density of beta emitters in the pile area effluent water ranged from 5.7 to 9.0×10^{-4} μc/cc at the outlet side of the 107 basins. In general, these levels are about the same as, or somewhat lower than, those measured a month ago.

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Bioassay

Five hundred and thirty-three urine samples were analyzed for plutonium; eighty spiked and blank urine samples were processed as controls. Plutonium measured in the urine samples by the present T.T.A. procedure averaged 0.04 dis/min. The average recovery yield for plutonium during the month was ninety-five percent. The positive plutonium detected in the urine of two employees last month, which indicated body deposition of 0.04 μg in one case and 0.007 μg in the other, was confirmed this month by analyses of weekly samples. The results of these analyses follow very closely the calculated excretion curves of W. Langham. There was no resample during the month necessitated by erratic yields; three urine samples exceeded the detection limit of 0.33 dis/min; these were 0.33, 0.54, and 0.38 dis/min, respectively. Resamples were taken.

Four hundred and ninety samples were analyzed for fission product isotopes; sixty-nine urine samples were processed as controls. None of the above samples indicated activity from beta emitters to exceed the current reporting level of ten counts per minute. Three experimental analyses of urine for fission product isotopes using the ion-exchange resin method proved unsatisfactory for adoption as a routine but may be applicable in some specialized cases.

One hundred and fifty-nine urine samples were analyzed for uranium. Samples are now taken after about 4 days' continuous exposure to possible uranium contamination, and then again two days after a non-exposure period (weekend). A tabulation of the results of the analyses of these samples follows:

Job Description	END 4th DAY OF EXPOSURE μg/liter		NO EXPOSURE, END 2nd DAY, μg/liter		TOTAL NUMBER SAMPLES
	Average	Maximum	Average	Maximum	
Canning	4	14	3	8	44
Machinery	6	16	4	10	24
Melt Plant	13	27	9	31	10
Material Handling	11	15	6	11	10
Inspection	4	7	3	5	16
305	1	2	2	3	4
Car Unloading	17	53	2	6	40
Clerical	2	3	2	2	5
Random samples	1	1	-	-	6

15

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Five hundred and twenty-six urine samples were analyzed for tritium oxide. Two hundred and seventy-two samples were processed as controls, and two hundred and sixty-five analyses were made as re-runs to confirm values of original analyses. One hundred and nineteen urine samples indicated values exceeding the detection limit of 5 μc/liter; one individual's samples reached a record high of approximately 400 μc/liter. A distribution of results of tritium oxide analyses appears below:

TRITIUM OXIDE IN URINE
μc/liter

Concentration group	< 5	5-10	10-20	20-50	> 50
Number samples	407	43	17	18	41

Analytical-Control Laboratory

The low background alpha counters improved considerably during the month. A considerably lower number of recounts was experienced, and a large backlog of samples was removed by the adoption of a third shift for a two-week period.

Further tests were run on P-13 water. Distillation through a fractionating column, and successive distillations, in addition to treatment with ion-exchange resin and activated charcoal, all were indicative of the presence of tritium oxide. The presence of 14.8 hour sodium was also detected in the P-13 water.

The apparent soft X-rays emitted from P-10 glassware previously suspected by preliminary measurements using a high magnetic field is now believed to be due to bremsstrahlung effect from high concentrations of tritium oxide on the glassware. The glassware was found to contain about 20 mc/cm^2 of tritium activity other than the oxide.

Twenty samples of basin water from the 100 Areas were analyzed for the H.I. Operational Division. Significant quantities of plutonium in the storage basin at 100-H Area were measured after one of the difficult periods.

A summary of the samples analyzed and Counting Room measurements made appears below:

LABORATORY	February 1951	1951 To Date
Type sample		
Vegetation	1303	2907
Water	1710	3483
Solids	374	641
Fluorophotometer	621	1353
Special Survey Analyses	26	65
Air sample analyses	185	364
Total	4219	8813

16

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COUNTING ROOM

Type sample	February 1951	1951 To Date
Beta measurements (recounts included)...	3564	8432
Alpha measurements (recounts included)...	3465	7576
Control points (beta and alpha).....	1917	3999
Decay curve points.....	1997	4137
Absorption curve points.....	376	694
Total.....	11,319	24,838

Calibrations

	Number of Routine Calibrations		
	January 1951	February 1951	1951 To Date
Radium calibrations			
Fixed Instruments			
Gamma	264	242	506
Portable Instruments			
Alpha	300	248	548
Beta	624	549	1,173
Gamma (radium)	1,149	1,003	2,152
X-ray	--	4	4
Neutron	1	2	3
Total	2,073	1,806	3,880
Personnel Meters			
Beta	875	756	1,631
Gamma (radium)	9,490	6,658	16,148
X-ray	2,190	5,786	7,976
Neutron	20	11	31
Total	12,575	13,211	25,786
Grand Total.....	14,913	15,259	30,172

Meteorology

Forecasts	February 1951 Number made	Percent Reliability
Production	84	83.6
24-hour	55	86.3
Special	13	100.0

17

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Meteorology - continued

All of the meteorological elements measured during the past month averaged near normal. There were few noteworthy extremes, and there was no unusual weather.

Daily high and low temperatures during the past month averaged 36.9, or 1.4° above normal. The highest temperature (65) occurred on the ninth; the lowest (18) occurred on both the first and second.

February precipitation totalled 0.51 inch, most of which occurred in the form of snow early in the month. Normal precipitation for February is 0.63 inch.

Fifty-feet level windspeeds averaged 6.3 mph. Normal for February is 7.4 mph. Only on the ninth and tenth was there any appreciable speed. The peak gust for the month (43 mph) was from the southwest on the tenth.

DEVELOPMENT GROUP

Experimental Meteorology

An investigation of the wind profile observed in strong winds is being conducted for the purpose of determining the roughness parameter for different wind directions, the shearing stress near the ground, and the value of the exponent in the power law describing the wind profile.

Initial tests of the M-2 smoke generator were made. An investigation of the possibility of high ground concentrations of NO_2 fumes emitted from the 200 Area stacks has been made. It is very unlikely that toxicity levels of 25 ppm are maintained for more than a few seconds at a time.

Industrial Hygiene

The exhaust ventilation control of P-10 cell line hoods was investigated to appraise the adequacy of the installation. Velocity measurements and smoke tests were made on a typical hood under various conditions encountered in the operation of the cell room.

The efficiency tests on Hersey Bag Filters in the 314 building have been started. This work is being done cooperatively with the H.I. Operational Division personnel in the area. Particle size measurements are being integrated with exposure studies in this building.

Several special studies of nonradioactive hazards were completed. These included measurements of the oxides of nitrogen escaping from hoods in the H.I. Biology Building, and measurements of carbon monoxide in the 700 and 1100 Area garages.

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Geology

There was no significant change in ground water contamination levels in the 200 Areas and the 300 Area. Wells 303-10 and 303-11 were completed to the water table just south of the 300 Area. Samples from both indicated radioactive contamination. Drilling of well 303-12 was started, and it should be completed in time to measure the expected changes during the spring rise of the Columbia River.

The water table beneath the 200-W Area has been rising steadily during the past year; and the maximum level, at a point beneath the northwest corner of the area, is now 12 feet above the level determined in October, 1949.

Field work was continued in the observation of subsurface materials as revealed in construction area excavations.

Soil Science

A particle size distribution analysis of the 219-S-2 well profile was made. About 20% of the soil has a particle size of less than fifty microns. The entire profile of this well would be classified as a sand by either the International Society of Soil Science classification or the U.S. Bureau of Chemistry and Soils classification. However, there is an appreciable amount of clay (less than 2 microns) which may be very significant in the retention of radioactive materials.

Some difficulty has been experienced in determining the cation exchange capacity of 219-S-2 samples, because of the high calcium carbonate content. However, a workable photometric procedure using manganous ions is believed to be possible.

Preparations have been made for preliminary experiments on the retention of plutonium on soils.

Methods Development

The electrodeposition work has been moved to the Bioassay Laboratory for testing at low levels under routine conditions. All work is being performed by a laboratory assistant from Bioassay and a technologist from the Development group. Most of the difficulties have arisen in the reading of the nuclear film plates. Since the active area is not always at the center of the 1/2 in. disc used, considerable time is spent in defining the areas to be read. A new plastic plating cell to allow more precise positioning is now being made. In addition, stops have been designed for the microscope stage to define the length of the strip to be read without constant reference to the vernier scale. Preliminary results on 8 spiked samples and 6 blank samples indicate yields of 80-100% with blanks of about 4 tracks/mm^2 (0.05 d/m).

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Health Instrument Divisions

The hydrogen counter, for tritium oxide analysis, has been in routine use by the laboratory for most of the month. A series of panel lights to minimize evacuation of the high voltage on the tube has been installed. Results from the early part of the month indicate reproducibility within 10%, but later values have somewhat more fluctuation.

Tests on the absorption of tritium oxide on commercial small driers were started. Efficiencies close to 100% were obtained on collection at flow rates of several liters per minute when the beds were properly prepared. Tests on the retention of tritium on drying beds have indicated the possibility that magnesium perchlorate oxidizes the tritium to the oxide. Preliminary results indicate that this effect is only on the order of a few percent for silica gel.

Physics

All slides which should be necessary for the current study of neutron spectra have been exposed and measured. Analysis and correction of the data are not yet complete. In connection with the use of nuclear emulsions for personnel monitoring in the 234-5 building, calculations have been made to determine the corrections necessary because of the relatively low energy of neutrons obtained from the action of alpha particles on fluorine, the reaction which is encountered there. These calculations indicate a balancing between the factors of cross-section and length of track observed; short tracks of less than four grains are neglected, so that calibration by use of Po-B neutrons is not too far wrong. Correction for fading effects has not been determined, but would be very important if much time elapsed between exposure and development of the film.

Another check on the neutron flux from the new Po-B source was made which confirmed the earlier results which have been in disagreement with the supplier's calibration.

Studies of the gamma energy dependence of several experimental ionization chambers was continued. An attempt is being made to get a workable method for field use in the determination of gamma ray energies below 0.5 Mev. Absorber wedges used with film is workable but slow. The present work is with a series of absorber shells used with a thin-walled geiger counter.

A scintillation system for human thyroid

Instrument Development

A scintillation system for human thyroid monitoring is under development. The detector is a 3 cm. diameter by 1 cm. thick anthracene crystal and 5819 photomultiplier. With laboratory supplies, etc., a source of 0.03 μc placed 2 cm. from the probe gave about 500 c/m above a background of 100 c/m. Refinements in the electronic system are being studied to ascertain that optimum signal to noise ratio is attained. As part of the scintillation system investigation, an audio frequency (3500 cycle) high voltage power supply was developed, and is being used in laboratory work. Its regulation characteristics are at least as good as conventional T-R-F supplies, and components costs are notably lower. The current model covers the range of 500-1250 volts.

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Health Instrument Divisions

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The dynamic range of several pulse amplifiers is being investigated to determine their usefulness for proportional counting. The Tracerlab instrument is far superior to any other at this stage of testing. Pocrest seems to be the NICC Model 162 amplifier. Simulated proportional counter pulses were used as a test source. Counter Gas investigations continued and showed two Helium Methane mixtures to give fair geiger results, and some promise for proportional counting. Freon-methane failed to give usable results under preliminary test conditions. This mixture was tested because of its flame-propagation quenching properties.

A differential chamber system for measuring P-10 uptake by rats was completed and tested electrically. Upon obtaining balance with P-10 in the chambers, the instrument portion of the work will be complete.

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Health Instrument Divisions

BIOLOGY DIVISION

Analyses Group

1. Radioactivity in Carcasses

Work was limited to the analysis of two bone ash samples for radium by the direct counting method. These two analyses gave values of around 10^{-13} µg of Ra/g of bone ash.

2. Alpha and Beta Analyses of Organic Material

Methods of analyzing biological samples for Cm in the presence of Pu were investigated. Preliminary results indicate good separation can be obtained by co-precipitating Pu with $BiPO_4$ and then recovering the Cm from the supernate by carrying on $La(OH)_3$ followed by LaF_3 and counting. A second successful method involved the pre-separation of Pu and Cm from the gross sample followed by separation on an ion column using Dowex-50 as the adsorbant and citrate solutions as the eluant.

Further tests of the analytical method for I^{131} in large organic samples using fusion in Na_2CO_3, solution of the carbonates with nitric acid, and precipitation of the iodide with silver were made. Since the possibility of oxidizing the iodide ion to iodine with nitric acid existed, it was hoped to substitute hydrochloric acid and palladium in the solution and precipitation steps. Results have not been as consistent with these reagents, and more testing is necessary.

3. Radioelements in Organisms in Pile Effluent

No progress.

4. Physical Processes Affecting Methods for Isotope Use

A study of losses due to coincidences during counting of beta samples was made. Losses for the five sets studied varied from 0.5% to 1.5% at 1000 counts per min.

A Tracerlab windowless flow counter was installed and tested with satisfactory results.

Buildup curves for several radium samples (as $RaSO_4$ with $BaSO_4$ carrier) were studied. Good reproducibility and agreement with theoretically expected buildups were observed indicating radium daughters can be counted to increase sensitivity.

A calibrated sample of tritium gas from the local operation was burned to determine the efficiency of the vibrating reed electrometers. A yield of

22

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49% was obtained as compared to a yield of 85% on a calibrated sample of tritium oxide from Chicago. Two other samples, converted to the oxide by Biochemistry gave yields of 82% and 45% under similar conditions. Since these values are far outside the reproducibility of any given sample, more work is necessary.

5. Waste Disposal Methods for Biological Specimens

Inactive

6. Physical Chemical Methods for Dosimetry due to Deposited Isotopes

Inactive

Services

Analytical services to other biology groups consisted of calibrating four ORNL shipments of I^{131}, two shipments of P^{32}, one shipment of Cs^{137}, preparing spike solutions for animal and plant feeding, and the analyses of about 1300 samples. These are in addition to approximately 3900 alpha and beta counts including decay and absorption studies. This work represents a 35% increase over last month.

Four animal carcasses from Arco were analyzed for radium in cooperation with the background study being made there. Eight wool samples were analyzed for I^{131} prior to shipment elsewhere.

Aquatic Biology Group

1. Effect of Pile Effluent on Aquatic Organisms

With the resumption of operation of the 100-F pile, experimental conditions were normal during the month in the chinook salmon monitoring studies. Mortality remained consistently low (2.8%) among the control lots but has now reached 46% in 10% uncooled area effluent, the most severe condition. Mortality increased significantly in the 10% cooled pile effluent and the 10% pile influent water, reaching 12% and 6% respectively. Slightly increased mortality observed in some other lots is of questionable significance. With the exception of the area effluent dilutions where the warmer water has encouraged growth, all of the 10% mixtures have significantly retarded growth and all 5% mixtures have slightly retarded growth. All fish are now feeding.

2. Biological Chains

No significant change was observed in yearling rainbow trout held in 5% pile effluent. With continued low temperatures of the river water, food intake has been almost nil and consequently no difference in activity

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density was observed between fish receiving radioactive algae and those on an uncontaminated diet. To reduce the number of fish sacrificed for activity density determinations, scale samples only are being removed from live fish. This permits repetitive determinations on the same individuals.

3. Radiobiological-Ecological Survey of the Columbia River

The river height increased about 4 feet during the month which continued to preclude the shore collecting of bottom forms. Floating collectors have been placed at several of the stations which will soon supplement bottom algae samples. The activity density of juvenile fish collected at Hanford further declined to 8×10^{-5} uc/g, about half that observed last month in spite of the reactivation of the 100-F pile. The average activity density of the plankton at Hanford increased to 1.6×10^{-2} uc/g for an all time high. Exploratory collections from the boat in the vicinity of Hanford indicate that for this locality the activity density of the plankton on the plant side of the river is about twice that on the far side.

4. Control of Algae in 107 Retention Basins

No progress. The scheduled test in the 107-B Retention Basin awaits delivery of the anti-fouling paint.

Biochemistry Group

1. Relative Biological Effects via Biochemical Systems

The rate of growth and the acid-producing ability of L Casei incubated at different temperatures in suboptimal media are being determined.

2. Absorption of Pu from the G. I. Tract

The Pu^{238} obtained from the University of California was purified and new solutions were prepared. Plutonium feedings were resumed on February 15th and check plates are being carefully prepared daily to watch for any evidences of decay of alpha activity.

3. P-10 Hazards Biological Investigations

Investigations on the retention and distribution of tritium oxide in rats indicate that during the first 20 days following administration, body water activity continues to be lost with a biological half-life of 3.0-3.5 days. Although the bound tritium concentration in various pooled organs and tissues differed greatly during the initial phases of this experiment, by the 20th day most of the tissues differ by no more than a factor of 2 and exhibit a biological half-life of bound tritium of 5-7 days. Fat and lipid-containing tissues such as skin and brain show a higher concentration of bound tritium and a longer biological half-life. Twenty days after tritium oxide administration, 15% of the tritium remaining in the carcass is in the tissue-bound

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state and this corresponds to 0.5% of the total administered activity. Of this bound tritium, about 45% is in muscle, 20% in the fat, and 20% in the skin. Scattered analytical returns from rats sacrificed beyond the 20th day of tritium oxide administration indicate that the lipids of the body constitute the primary site of long-term binding of tritium.

A group of 40 rats have each received a total of 100 mc of tritium oxide by intraperitoneal injection. After a cooling period of several months, these animals will be sacrificed and their tissues will be used for the chemical identification of long-term binding substances.

Analytical data on the retention of bound tritium in the mouse 30 days after cessation of the administration of tritium oxide show a biological half-life of 15 days. This value is less than the biological half-life for bound tritium estimated from the earlier short-term experiment. Sixty days after cessation of tritium oxide injection in the mouse, the biological half-life for bound tritium is of the order of 25-30 days.

The experiment on the percutaneous absorption of tritium oxide vapor by 57 rats exposed for 15 minutes to 3 hours indicates that there is a definite trend toward a constant figure for the amount of tritium oxide passing through the skin per unit of time. Small areas of skin of seven rats were exposed for one hour during 4 consecutive days to tritium oxide vapor and blood samples were taken before and after each exposure. Counting data are not available yet, but it is believed that more reproducible data for percutaneous absorption rates will be obtained if the same skin area is exposed.

An attempt to determine the percutaneous absorption of tritium oxide vapor in dogs is now in progress.

4. Possible Therapeutic Agents for Radiation Damage

No progress.

5. Percutaneous Absorption of Radioelements

Work not started.

Services

During February, the Chemical Services Laboratory performed 869 biochemical and 950 hematological determinations in conjunction with the Animal Farm program. A working procedure for counting white blood cells in ducks has been developed, in support of the Biological Monitoring project. Various bacterial stock cultures for the Botany Group are being maintained.

25

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More than 150 colorimetric protein-bound iodine determinations, in duplicate, were performed during the past month on the ewes and lambs of the Animal Farm. A similar number of I^{131} determinations, both in the organic and inorganic form were carried out on 9 lambs which are currently receiving large doses of radioactive iodine. Attempts will be made by the Zoology Group to correlate clinical symptoms with these data.

Botany Group

1. Agricultural Field Station

Twenty soil samples were taken from the treatment plots. The average activity density was 1.5×10^{-5} μc/gm and the range was 5.5×10^{-6} to 2.4×10^{-5} μc/gm.

2. Translocation of Radioelements in Plants

Experiments have been completed on the relationship of Sr^{90} absorption and translocation by red kidney bean plants to the concentration of Sr and the pH of the nutrient solution. The results of these experiments will be reported next month.

3. P-10 Botanical Investigation

An additional 10 exposures were made of red kidney bean plants to light or darkness for different periods of time in an effort to more accurately establish the rates of incorporation in light and darkness of tritium from tritium oxide of the nutrient solution into plant water and organic matter. In these experiments the genetic constitution, germination procedure, age of the plants, composition and temperature of the nutrient solution, temperature of the air, light intensity and quality were controlled as accurately as possible. The results of these experiments will be reported next month.

In a single experiment in which a vein of a trifoliate leaf of a red kidney bean plant was cut and then placed for 30 minutes in a small cup containing tritium oxide solution, it was found that at the end of three hours the tritium oxide had moved upwards and downwards in the plant. A small portion had entered the nutrient solution in which the roots were growing.

Chloroplast preparations from bean and clover leaves have been stored under nitrogen in the cold for four days with little loss in hydrogenase activity. Forty to eighty milligrams of these preparations (dry weight) will reduce 600 - 700 μg of the dye, 2, 6 dichlorobenzenoneindophenol, in 15 minutes under a light intensity of approximately 2500 f.c. These preparations represent a concentration of activity by a factor of 5-10 per unit weight over that of the original bean leaves and are being used to study the uptake of tritium by plants.

26

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Azotobacter chroococum are now harvested in Burk's medium rather than in saline solution or phosphate buffer, as formerly, and then they are homogenized in a Waring blendor. These suspensions now retain full hydrogenase activity for more than two weeks when stored at 3° C. They reduce approximately 95%, as calculated from the gas uptake, of the methylene blue added to the culture. It appears from these results that the hydrogenase enzyme may be susceptible to oxidation.

4. Effects of Radiation on Plant Life

An experiment is in progress on the level of P^{32} which will cause damage to red kidney bean plants.

Physiology Group

1. Biological Effects of Active Particles

No further progress. Animals are being bred.

2. Bone Metabolism of Radioelements

No report.

3. Techniques in Autoradiography

No report.

Services

Services to other groups included the preparation of photographs and autoradiographs relative to the uptake of I^{131} by sheep thyroids, and routine histological preparations and photomicroscopy. Motion pictures of living animals affected grossly by I^{131} were made, and equipment and techniques are being developed to investigate the effects of I^{131} on basal metabolic rates.

Zoology Group

1. Biological Monitoring

Waterfowl

The monthly census of waterfowl showed an decrease in total numbers as compared with January, due to the onset of spring migration. A total of 1150 birds was counted, with the Canada goose and common mallard accounting for approximately 75% of the population. A flock of 34 whistling swans was observed near Priest Rapids. Wild waterfowl taken near 100-F Area showed all samples to be below the MPC for P^{32}. Maximum value found in bone was 0.001 μc/g.

27

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Experiments concerning distribution and translocation during cooking of radiophosphorus in waterfowl have been completed. The data will be presented in a report.

Upland Wildlife

Rabbits taken in the vicinity of the 200-E pond exhibited thyroid activity densities exceeding the MPC for I^{131} by a factor of 2. Total beta analysis of soft tissues and bone showed no significant values.

Thyroid activity densities of rats taken two miles south of 100-F Area varied from 0.006 μc/g to 0.0003 μc/g.

2. Toxicology of I^{131} in Stock Animals

Commencing on February 12, 1951, 9 ram lambs were placed on a feeding regimen containing 480 μc of I^{131}/ram/day. The lambs were divided into 3 experimental groups of 3 animals each. Group A will be maintained on I^{131} until thyroidal damage is evidenced by a drop in external count using an ionization chamber. At that time the animals comprising Group A will be sacrificed to determine extent of thyroid damage and I^{131} distribution. Coincident with the sacrifice of Group A, the feeding of I^{131} will be discontinued in Group B. Group C will be maintained on I^{131} feeding until about mid-April at which time all members of the experiment will be sacrificed to complete the study.

Protein-bound iodine determinations are run by Biochemistry on all members of the groups, including controls, every two days. The ratio of radioactive PBI to radioactive iodide in the blood is also being determined. The results of these determinations will be a valuable addition to the toxicology problem and may well serve as an indicator of the extent of thyroid damage and progress of the reparative processes.

One ram lamb member of a supplementary study expired during this period. This animal had been receiving 240 μc of I^{131} daily since September after being weaned from a mother on a similar I^{131} regimen. Since December the animal has displayed retrogression. Concurrent with a stiffness in gait and general lethargy, an alopecia was observed. This loss of wool was first exhibited dorsally extending from the cervical to the sacral region, then continued ventrally until he exhibited a complete loss of wool. The skin lacked pliability denoting general dehydration. There was apparent difficulty in prehension. Constipation was also noted. Three weeks ante mortem his reaction with regard to libido was tested with a female in estrus. He was induced to mate but was unable to mount the ewe because of physical weakness. At necropsy the thin fibrous remnant of the thyroid was difficult to dissect from adjoining tissue.

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One ewe lamb member of the group receiving 240 μc/day also expired during this period. Weight at necropsy was 10.7 kg as compared with a control ewe lamb weight of this age of about 40 kg. This ewe lamb weighed 18.6 kg at weaning. It has exhibited for the past weeks a general lethargic condition, muscular weakness, and general incoordination. At necropsy there was subcutaneous edema over pectoral region extending posteriorly to the ventral abdomen. The thyroid consisted essentially of a shrunken fibrous band. There are numerous shallow ulcers observed in the oral cavity.

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GENERAL ACCOUNTING DIVISION
MONTHLY REPORT

February, 1951

GENERAL:

Approximately 1 860 man hours were expended by Payroll Division in preparing individual Employee Benefit Plans Letters showing status in the principal benefit plans. These statements will be mailed to employees on March 9, 1951. As of February 28, 1951, this work was 97% complete.

The 3% general salary increase (minimum 4¢ per hour) applicable to July 2, 1950 rates, effective September 18, 1950, for employees represented by the H.A.M.T.C. and for employees represented by Local 201, Building Trades Service Employees Union, was paid on a current basis beginning February 12, 1951 to 3 317 employees. The retroactive portion of the General Adjustment covering the period September 18, 1950 through February 11, 1951 will be included in salary checks distributed on March 16, 1951. Approximately 600 man hours were expended during February on the calculation of this retroactive payment.

Considerable additional payroll work resulted from regulations issued by the Wage Stabilization Board.

During the latter part of 1950 we asked the International Business Machine Corporation to assign a representative of their company to make a study and analysis of our payroll practice and procedure and submit a report in sufficient detail for us to determine whether the use of IBM equipment would be more efficient and economical in preparing our payroll than the equipment we are presently using.

Our present payroll system has been thoroughly explained to the IBM representative and he has spent considerable time in studying our operations. Meetings have been held with representatives of payroll on several occasions to discuss the various phases of operations under the IBM system and considerable volume of statistics concerning our payroll operations have been prepared for use in the study. A report of the study is being prepared and should be completed during March.

A study of the report will be made to determine the advisability of using IBM equipment for payroll preparation and statistical information.

Fourth quarter budget reviews and revisions of FY-1951 budget estimates covering Kadlec Hospital, Research and Development, P-10 Program, and Graphite Storage costs were completed early this month and submitted to AEC. Revised estimates were also completed for Cash Working Capital, Inventories, and Operating Equipment. Final instruction relative to preparation and presentation of budgets for FY-1953 were received from AEC and work on these budgets was started.

Internal auditors began audits this month in connection with procedures followed by Employee and Community Relations Divisions in processing of terminated employees and of cash change funds assigned to the School of Nuclear Engineering. Audits were completed and reports are being issued relative to Timekeeping, Hospital Revenue, Bus Revenue, and Receiving and Shipping procedures. Audits of State Business and Occupation Taxes and Stores inventory procedures were continued.

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General Accounting Division

Advances from AEC increased from $4 000 000 as of January 31, 1951 to $5 000 000 as of February 28, 1951. Advances are accounted for as follows:

	February	January
Cash in Bank - Contract Accounts	$4 470 490	$3 010 724
Cash in Bank - Salary Accounts	50 000	50 000
Cash in Transit	79 510	428 657
Advances to Subcontractors	300 000	400 000
Travel Advance Funds	100 000	100 000
Expenditures Disallowed by A.E.C.	-0-	10 619
Total	$5 000 000	$4 000 000

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

	February	January
Disbursements		
Material and Freight - GE	$ 2 353 419	$2 510 455
Payrolls - GE (Net)	1 972 441	1 941 262
Payments to Subcontractors	3 611 335	3 300 065
Other	1 141 966	992 187
Pension Trust Fund - Company Portion	1 213 300	-0-
Total	$10 292 461	$8 743 969
Receipts		
Rents	$ 114 924	$ 145 036
Hospital	52 515	41 747
Telephone	12 795	15 989
Bus Fares	9 199	10 858
AEC Cost-type Contractors	6 450	62 559
Other	17 069	39 123
Total	$ 212 952	$ 315 312
Net Disbursements	$10 079 509	$8 428 657

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General Accounting Division

STATISTICS

Employees and Payroll	Total	Monthly Payroll	Weekly Payroll
Employees on Payroll at beginning of month	7 950	1 931	6 019
Additions and transfers in	170	12	158
Removals and transfers out	(130)	(23)	(107)
Transfers from Weekly to Monthly Payroll	--	22	(22)
Transfers from Monthly to Weekly Payroll	--	(2)	2
Employees on Payroll at end of month	7 990	1 940	6 050

Number of Employees	February	January
Bargaining group - HAMTC	3 041	3 072
Bargaining group - Building Services	69	68
Other weekly	2 940	2 879
Two platoon firemen	59	61
Executive, administrative and operating	1 275	1 274
Professional	562	553
Other monthly	44	43
Total	7 990	7 950

Number of Employees		
Manufacturing	3 413	3 410
Design and Construction	666	668
Municipal	234	244
Real Estate and General Services	428	428
Technical	815	812
Health Instrument	425	429
Employee and Community Relations	100	98
Plant Security and Services	1 005	976
Purchasing and Stores	369	353
Medical	288	283
General Accounting	188	189
General Administrative	59	60
Total	7 990	7 950

Overtime Payments		
Weekly Paid Employees	$ 86 541	$ 66 217
Monthly Paid Employees	23 882 (1)	16 814 (2)
Total	$110 423	$ 83 031

Number of Changes in Salary Rates and Job Classifications	1 251	878

Gross Amount of Payroll		
Manufacturing	$ 1 271 335	$ 1 250 658
Design and Construction	259 943	249 097
Municipal, Real Estate & General Services	228 572	226 981
Others	1 081 166	1 080 060
Total	$ 2 841 016 (3)	$ 2 806 796 (4)

(1) Payments cover period from 16th of previous month to 15th of current month, except that in the case of Design & Construction Divisions, payments cover period January 1, 1951 to January 31, 1951.

(2) Payments cover period from 16th of previous month to 15th of current month, except that in the case of Design & Construction Divisions, payments cover period December 1, 1950 to December 30, 1950.

(3) Includes payments for the four (4) week period ended February 18, 1951 in the case of Weekly Paid employees. Salary increases, effective September 18, 1950 of 3% (minimum of 4¢ per hour) on July 2, 1950 rates, were paid on a current basis effective February 12, 1951 to 3,100 employees represented by unions.

(4) Includes payments for the four (4) week period ended January 21, 1951 in the case of Weekly Paid employees.

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General Accounting Division

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Annual Going Rate of Payroll	February		January	
Base		556 227	$33	027 729
Overtime		1 382 405		1 113 110
Isolation Pay		1 033 968		1 039 935
Shift Differential		411 834		409 688
Other		55 817		44 562
Total	$36	440 251 (1)	$35	635 024

Average Hourly Base Rates		
Bargaining group - HAMTC	1.947	1.896
Bargaining group - Building Services	1.494	1.459
Other weekly	1.619	1.619
Two platoon firemen (monthly rate ÷ 173.9 hours)	1.847	1.848
Executive, administrative and operating	2.798	2.795
Professional	2.680	2.667
Other monthly	2.182	2.205
Total	2.013	1.991

Average Earnings Rate Per Hour (2)

	February			January		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Manufacturing	$2.109	$2.805	$2.240	$2.062	$2.802	$2.201
Design and Construction	1.621	2.924	2.106	1.617	2.915	2.105
Municipal, Real Estate and General Services	1.876	2.367	2.029	1.829	2.362	1.994
Others	1.717	2.677	1.946	1.711	2.673	1.943
Total	$1.898	$2.721	$2.091	$1.871	$2.715	$2.070

% Absenteeism	February	January
Weekly - Men	2.78	2.27
Weekly - Women	3.89	3.70
Total Weekly	3.06	2.63
Monthly	1.82	1.46
Grand Total	2.76	2.34

Employee Benefit Plans		
Pension Plan		
Number participating at beginning of month	6 554	6 471
New participants and transfers in	45	128
Removals and transfers out	(69)	(45)
Number participating at end of month	6 530	6 554
% of eligible employees participating	95.8%	95.7%

(1) Includes new rates after giving effect to General Salary Adjustment as indicated in note (3) on previous page.

(2) Includes shift differential and Isolation Pay. Excludes overtime premiums, commissions, suggestion awards, etc.

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Employee Benefit Plans (Continued)

Pension Plan (Continued)

Employees Retired	February	Total to Date
Number	1	156-a)
Aggregate Annual Pensions Including Supplemental Payments	$ 86	$37 484-b)
Amount contributed by employees retired	214	23 689

(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	February	January
Number participating at beginning of month	7 679	7 691
New participants and transfers in	143	59
Cancellations	(15)	(19)
Removals and transfers out	(92)	(52)
Number participating at end of month	7 715	7 679
% of eligible employees participating	95.7%	96.0%

Dependent Coverage		
Number participating at beginning of month	5 027	5 033
Additions and transfers in	65	39
Cancellations	(7)	(16)
Removals and transfers out	(56)	(29)
Number participating at end of month	5 029	5 027

Claims - Disability Benefits (2)		
Number of claims paid by insurance company:		
Employee Benefits		
Weekly Sickness and Accident	135	72
Daily Hospital Expense Benefits	136	95
Special Hospital Services	147	110
Surgical Operations Benefits	90	65
Dependent Benefits		
Daily Hospital Expense Benefits	268	149
Special Hospital Services	295	167
Surgical Operations Benefits	176	116
Amount of claims paid by insurance company:		
Employee Benefits	$23 295	$13 610
Dependent Benefits	26 817	14 856
Total	$50 112	$28 466

Claims - Death Benefits (3)	February	Total to Date
Number	-0-	57
Amount	-0-	$293 327

(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.

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General Accounting Division

Employee Benefit Plans (Continued)

Group Life Insurance

The Group Life Insurance Plan was discontinued November 30, 1950. As of February 28, 1951, 30 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 February 28, 1951, 13 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 February 101 checks in payment of benefits of $5,644.19 on 77 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

	February			Total to Date		
	Weekly	Monthly	Total	Weekly	Monthly	Total
Manufacturing	3	16	19	44	22	66
Design and Construction	1	-0-	1	1	-0-	1
Municipal, Real Estate and General Services	2	-0-	2	5	-0-	5
Technical	1	5	6	1	6	7
Plant Security & Services	6	5	11	21	11	32
Purchasing & Stores	3	-0-	3	3	-0-	3
Medical	-0-	-0-	-0-	1	-0-	1
Total	16	26	42	76	39	115

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General Accounting Division

Employee Benefit Plans (Continued)

U. S. Savings Bonds	Mfg.	Design & Construction	Municipal, Real Estate & General Services	Other	Total
Number participating at beginning of month	1 662	251	289	1 380	3 582
New authorizations	24	8	4	13	49
Voluntary cancellations	(60)	(11)	(12)	(34)	(117)
Removals and transfers out	(6)	(2)	(8)	(12)	(28)
Transfers in	5	-0-	1	2	8
Number participating at month end	1 625	246	274	1 349	3 494
% Participating	47.6%	36.9%	41.4%	41.5%	43.7%
Bonds Issued					
Maturity Value	$ 98 325	$ 13 725	$ 15 525	$ 75 075	$ 202 650
Number	1 739	243	280	1 347	3 609
Refunds Issued	63	16	10	35	124
Revisions in authorizations	13	6	6	25	50
Annual going rate of deductions					
G.E.Employees Savings and Stock Bonus Plan	$650 383	$ 95 019	$105 071	$524 525	$1 374 998
G.E. Savings Plan	222 582	24 489	33 520	144 947	425 538
Total	$872 965	$119 508	$138 591	$669 472	$1 800 536

Annuity Certificates (For duPont Service)	February	Total to Date
Number issued	1	75

Suggestion Awards		
Number of awards	38	897
Total amount of awards	$ 350	$14 795

Employee Sales Plan

	February		
	Major Appliances	Traffic Appliances	Total
Certificates issued	86	286	372
Certificates voided	1	3	4

Salary Checks Deposited

	February		January	
	Weekly	Monthly	Weekly	Monthly
Richland Branch - Seattle First National Bank	706	843	700	848
North Richland Area Office - Seattle First National Bank	14	6	10	6
Richland Branch - National Bank of Commerce	236	179	218	177
Out of state banks (Schenectady staff)	--	2	--	2
Total	956*	1 030	928**	1 033

*Week ended 2-18-51
**Week ended 1-28-51

Special Absence Allowance Requests	February	January
Number submitted to Pension Board	9	6

Absenteeism (Weekly Paid Employees)	1951	1950
January 1 to February 19	2.76%	2.84%

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General Accounting Division

PERSONNEL AND ORGANIZATION

Number of Employees	February	January
On Payroll at beginning of month	189	189
Removals and transfers out	(6)	(6)
Additions and transfers in	5	6
Number at end of month	188	189
Net increase (or decrease) during month	(1)	-0-
% of terminations and transfers out	3.2%	3.2%
% of absenteeism	4.13%	2.72%

Changes by division in number of Accounting Division employees during February, 1951 were as follows:

	Name
General: Decrease of one employee	
One illness removal	Suzanne N. Endow
Accounts Payable: Increase of one employee	
One transfer from Plant Security and Services	Frances B. Reinbold
Cost: Decrease of one employee	
One employee entered Military Service	A. G. Victor
General Accounts: No Change	
Plant Accounting: Increase of two employees	
Two new hires	L. R. Harrington
	H. R. Graham
Weekly Payroll: Decrease of one employee	
Two new hires	Ruth D. Bender
	Alma L. Schroyer
One transfer to Manufacturing Maintenance	Mary E. Forbes
One illness removal	Mary E. Brand
One termination	Rosalie M. Davie
Monthly Payroll: No change	
Special Assignment: No change	
Budgets: No change	
Internal Audit: Decrease of one employee	
One termination	A. Salo

Injuries	February	January
Major	-0-	-0-
Sub-major	-0-	-0-
Minor	-0-	1

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General Accounting Division

PERSONNEL AND ORGANIZATION (continued)

Number of Accounting Division employees as of February 28, 1951 were as follows:

	Number of Employees		
	Non-Exempt	Exempt	Total
General	3	6	9
Accounts Payable	15	1	16
Cost	11	1	12
General Accounts	17	1	18
Plant Accounting	24	2	26
Weekly Payroll	65	6	71
Monthly Payroll	18	2	20
Special Assignment	2	-0-	2
Budgets	5	1	6
Internal Audit	3	5	8
Total	163	25	188

Non-exempt employees may be summarized as follows:

	Number as of	
Classification	2-28-51	1-31-51
Accounting A	2	2
Accounting B	2	2
Accounting C	7	5
Accounting D	7	7
Business Graduate	13	15
Clerical Working Leader	8	6
Cost Clerk A	-0-	1
Cost Clerk C	1	1
Cost Clerk D	1	1
Field Clerk C	2	2
General Clerk A	19	19
General Clerk B	42	44
General Clerk C	21	21
General Clerk D	9	8
General Clerk E	1	1
Office Machine Operator A	8	8
Office Machine Operator B	6	6
Office Machine Operator C	1	-0-
Secretary B	1	1
Steno-Typist A	2	2
Steno-Typist B	6	6
Steno-Typist C	3	4
Steno-Typist D	1	1
Total	163	163

Open employment requests as of February 28, 1951 were as follows:

Accounting B	1
Accounting C	2
Accounting D	1
Business Graduates	17
Cost Clerk B	1
Cost Clerk C	2
Cost Clerk D	3
General Clerk A	1
General Clerk B	3
Steno-Typist B	1
Total	32

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General Accounting Division

	February	January
Accounts Payable*		
Balance at Beginning of Month	$ 98 711	$ 52 106
Vouchers Entered	2 423 930	1 142 951
Cash Disbursements	2 451 584	1 098 304
Cash Receipts	737	1 958
Balance at end of month	$ 71 794	$ 98 711
Number of Vouchers Entered	2 036	2 441
Number of Checks Issued	1 223	1 405
Number of Freight Bills Paid	326	507
Amount of Freight Bills Paid	$ 4 153	$ 7 767
Number of Purchase Orders Received	1 229	1 199
Value of Purchase Orders Received	$ 510 814	$ 362 767
Cash Disbursements		
Municipal, Real Estate & General Services	$ 209 775	$ 90 325
Design & Construction	4 799 656	4 432 321
General	4 567 181	3 209 796
Manufacturing	715 849	1 011 527
Total	$10 292 461	$8 743 969
Material and Freight	$ 2 353 419	$2 510 455
Lump Sum and Unit Price Subcontracts	508 192	190 582
CPFF Subcontracts		
Labor	2 467 687	2 665 357
Others	635 456	444 126
Payrolls (Net)	1 972 441	1 941 262
Payroll Taxes	434 035	439 719
U. S. Savings Bonds	143 156	170 230
General & Administrative Expenses	200 000	200 000
Pension Trust Fund - Employers Constribution	1 213 300	-0-
Total	$10 292 461	$8 743 969
Cash Receipts		
Municipal, Real Estate & General Services	$ 98 359	$ 134 351
Design & Construction	132 582	45 099
General	11 509 844	7 532 044
Manufacturing	11 443	13 470
Total	$11 752 228	$7 724 964

*General Divisions Only

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General Accounting Division

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Detail of Cash Receipts	February	January
Advances from AEC	$11 428 657	$7 409 471
Rents	114 924	145 036
Hospital	52 515	41 747
Telephone	12 795	15 989
Scrap Sales	2 460	11 610
Bus Fares	9 199	10 858
Miscellaneous Accounts Receivable	8 574	16 722
A.E.C. Cost-type Contractors Accounts Receivable	6 450	62 559
Refunds from Vendors	2 012	3 762
Employee Sales	831	691
Educational Program	1 509	780
Refund of Advances to Subcontractors (Kellex)	100 000	-0-
Expenditures - Disallowed by A.E.C.	10 619	-0-
All Other	1 683	5 739
Total	$11 752 228	$7 724 964
Number of Checks Written		
Municipal, Real Estate & General Services	216	177
Design & Construction	649	679
General	1 223	1 405
Manufacturing	654	795
Total	2 742	3 056
Bank Balances At End of Month		
Chemical Bank & Trust Company - New York		
Contract Account	$1 539 648	$ 664 200
Seattle First National Bank - Richland		
Contract Account	2 256 467	1 948 376
U. S. Savings Bond Account	201 912	174 120
Salary Account No. 1	20 000	20 000
Salary Account No. 2	30 000	30 000
Travel Advance Account	18 868	32 947
Seattle First National Bank - Seattle		
Escrow Account	31 685	31 685
National Bank of Commerce - Richland		
Contract Account - Manufacturing	584 151	288 473
Contract Account - Municipal, Real Estate & General Services	90 225	109 675
Total	$4 772 956	$3 299 476
Travel Advances and Expense Accounts		
Cash Advance balance at end of month*	$ 50 313	$ 37 766
Cash Advance balance outstanding over one month*	4 021	1 096
Traveling and Living Expenses:		
Paid Employees	26 215	36 261
Billed to Government	23 976	34 125
Balance in Variation account at end of month	17 061 Dr.	14 821 Dr.

*General Divisions Only.

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General Accounting Division

Hospital Accounting	February	January
Accounts Receivable		
Balance at Beginning of Month	$ 128 047	$ 118 073
Invoices Issued	57 991	58 991
Refunds	1 114	447
Cash Receipts	52 515 Cr.	41 747 Cr.
Payroll Deductions	5 657 Cr.	7 684 Cr.
Bad Debts Written Off	175 Cr	-0-
Adjustments	16 Cr.	33 Cr.
Balance at End of Month	$ 128 789	$ 128 047

Scrap Sales	February	Total to Date
(a) Number of Sales	8	317
(b) Revenue (Not including Sales Tax)		
Revenue to G.E.	$ 2 460	$ 313 022
Revenue to AEC (Sale of Tract Houses)	275	39 609
Total Revenue	$ 2 735	$ 352 631

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General Accounting Division

ACCOUNTS PAYABLE

The number of vouchers booked in February was 2 036 amounting to $2 423 930 as compared to 2 441 in January amounting to $1 142 951. Although volume for the month decreased as compared with January, the average per day reflected an increase due to the shorter month.

The number of checks issued in February was 1 223 as compared with 1 405 issued in January. Again, this is a decrease in volume for the month, but represents an increase in the average checks per day. Details are as follows:

	February	January
Chemical Bank & Trust Company	459	503
Seattle-First National Bank	764	902
Total	1 223	1 405

A total of 2 035 vouchers were paid in February, averaging 1.66 vouchers per check, slightly lower than the average of 1.67 for the month of January.

On February 28 there were 1 437 vouchers on hand requiring additional supporting data before they could be forwarded to AEC for final audit. Details, compared with January, are as follows:

	February	January
Number on hand - Paid	413	368
Number on hand - Unpaid	1 024	971
Total	1 437	1 339

Of the above 413 paid vouchers on hand, there were 16, amounting to $952, that were more than 90 days old; and of the above 1 024 unpaid vouchers there were 9 more than 90 days old.

The General Ledger Accounts Payable balance on February 28 was $71,793.98. Details of this balance by months, compared with January, are as follows:

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General Accounting Division

ACCOUNTS PAYABLE (CONT'D.)

	February	January
August	$ 3.60 Dr.	$ 3.60 Dr.
September	-	4.72 Dr.
October	2,307.75 Dr.	2,473.23 Dr.
November	111.62 Dr.	2,774.16
December	97.70 Dr.	9,594.91
January	10,747.42	88,823.34
February	63,567.23	-
Total	$71,793.98	$98,710.86

New purchase orders issued in February applying to General Divisions totaled 1 229, an increase of 30 over January. This is especially significant since there were four less working days in February than in January. The value of these new orders was the highest for purchase orders issued in any one month applying to this division since decentralization of the Accounting Division in 1948. 60% of the value (or $310 998) of purchase orders issued in February apply to Stores Inventories accounts and 16% (or $80 728) apply to Plant & Equipment.

BUDGETARY CONTROL

During the forepart of the month the fourth quarter budget review was completed and revised FY 1951 budget estimates were submitted to AEC covering Kadlec Hospital, Research and Development, P-10 Program and Graphite Storage costs. These budget estimates were accompanied by narrative justifications compiled from information furnished by division heads. Revised estimates were also submitted for Cash Working Capital, Inventories and Operating Equipment. Supplemental schedules were prepared on Inventory Held in Standby (Spare Parts), Excess Inventory and Inventory Held for Possible Future Use.

Final instructions covering the preparation and presentation of the budget for FY 1953 and revision of the budget for FY 1952 were received from the Atomic Energy Commission. In line with these instructions work sheets were completed and forwarded to division heads. These work sheets were accompanied by copies of the AEC instructions supplemented by letters prepared by the Budget Accounting Section. Requests for budget data were made for divisional Operating Costs, Research and Development, P-10 Program, Kadlec Hospital, Construction Projects and Equipment.

Work was continued on compilation of statistics on divisional personnel, average divisional salary rates and other costs. The Payroll Division is assisting in the compilation of this data. This information will be used by the Budget Accounting Section in connection with the FY 1953 budget and the revised budget for FY 1952.

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BUDGETARY CONTROL (CONT'D.)

Operating cost reports for the month of February will include budget amounts as determined by the fourth quarter budget review. During the latter part of the month work progressed on entering these amounts on working papers of the Cost Section.

COST

General Divisions Operating Reports for the month of January were issued on February 15, 1951. Detailed reports of Research and Development Costs for Technical and Health Instrument Division programs were issued on February 21, and Consolidated Summary of Costs report was issued on February 28, 1951.

Cost analyses letters were issued to managers of each General Division showing a summary of January costs and a comparison with budgeted costs as set forth in the fourth quarter budget review. These letters also pointed out and explained significant changes in costs from the previous month.

The method of liquidating machine rental and maintenance charges incurred by the IBM unit of the Technical Statistics Group was thoroughly reviewed with the engineer in charge of the Mathematical Analyses and Computation Unit. In order to properly distribute these costs to customer divisions it was agreed that standard hourly rental charges would be established for each type of machine and charges for usage of the machines would be based on these standard rates. These charges are in addition to the normal IME liquidation rate of the Statistics group and will be made only to those who receive service from the IBM unit.

The method of allocating costs incurred in maintaining and handling Inventories Held for Possible Future Use and Excess Materials was carefully reviewed. As a result, assessments to operating divisions for the month of January were based on the ratio of actual withdrawals from these inventories.

A report of assessments to Design and Construction for services rendered by Purchasing and Stores Divisions was prepared and forwarded to the Division Accountant. This report not only detailed actual January charges but also outlined the method used in order to arrive at the total charge.

It was noted that certain costs were being incurred by Stores Division in connection with the cutting, handling and shipping of stainless steel to off-site vendors for fabrication work on Design and Construction orders. Arrangements were made to segregate the costs of such work so that they could be accumulated and transferred to Design and Construction to be included as part of the total fabrication costs on each order.

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General Accounting Division

COST (CONT'D.)

In order to provide a more accurate segregation of costs incurred by Technical Divisions (particularly Pile Technology) for work in connection with Special Requests and Off-Site AEC Accomodations, the present cost coding routine was greatly enlarged. This revised method will provide a means of accumulating feasibility investigation costs on proposed projects as well as costs of follow-up work performed on specific projects. This method will greatly reduce the unusually high charges previously allocated to the Special Request general overhead account. As a result, Manufacturing Accounting will be better able to substantiate charges made to off-site customers for this work.

In connection with the normal cost analyses work performed throughout the month, it was noted that steam charges to both the 700 Area Laundry and the 200 West Laundry as assessed by Municipal, Real Estate and General Services Divisions and 200 W Power Division respectively appeared to be unusually high. After a thorough review of the factors involved, the charges were discussed with representatives of the divisions responsible for the steam assessments and as a result it is expected that substantial reductions will be effected in future months.

Work order charges covering dismantlement costs for three hutments in the 700 Area which had previously been considered as expense were reviewed with Plant Accounting. As a result, it was determined that costs totaling $1 123 should be considered as retirement expense. Necessary adjustments were made to relieve 700 Area Costs and transfer the charges to Plant Accounts.

GENERAL ACCOUNTS

Advances from AEC totaled $5 000 000 as of February 28, 1951. The advances as of January 31 may be compared with those of February 28 as follows:

	February	January
Cash in Bank - Contract Accounts	$4 470 490	$3 010 724
Cash in Transit	79 510	428 657
Expenditures Disallowed by AEC	-0-	10 619
Cash in Bank - Salary Accounts	50 000	50 000
Travel Advance Funds	100 000	100 000
Advances to Subcontractors	300 000	400 000
Total	$5 000 000	$4 000 000

During the month of February, expenditures previously disallowed by AEC, G. E. Informal Inquiry #36, were reimbursed from the General and Administrative fund. These expenditures represented payments to employees who had been transfered to Nucleonics Department locations.

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GENERAL ACCOUNTS (CONT'D.)

Cash disbursements increased from $3 209 796 to $4 567 181. This increase was due mainly to the payment of $1 213 300 representing the Company's contribution to the 1950 Pension Trust Fund.

There were 110 travel expense reports processed this month compared with 147 the previous month. Traveling employees spent $16 875 and reimbursement was received from the Atomic Energy Commission for $15 835. The balance of $1 040 was charged to the Travel and Living Expense Variation Account. The balance of Travel Advances to Employees increased from $37 766 to $50 313 due mainly to increased travel activity.

Fiscal Year to Date, the Travel and Living Expense Variation Account has been charged with $17 061 (all Divisions). A total of $2 239 was charged this month, for which $641 was entertainment expense and $1 598 the difference between expenses incurred by employees and the amount billed the AEC.

The balance of Accounts Receivable - Miscellaneous decreased from $8 909 to $5 774 as of the end of the month. This balance may be summarized as follows:

Freight Claims	$2 041
Prepaid Freight (Bendix)	1 493
Due from Other G. E. Departments	1 200
Travel Refund Claims	944
Other	96
Total	$5 774

There is one large freight claim against the Milwaukee Railroad for $1 970 filed in August 1950 for laundry trays damaged in transit. This is being followed by the Traffic Section of the Purchasing Division. The prepaid freight paid for the Bendix Corp. is being followed by this Section. The amounts due from other G. E. Departments represents billings for Travel Advances.

General Ledger Trial Balances were received from all Accounting Divisions by noon, February 14, 1951. As a result of this early date, the majority of reports were completed early this month. Hanford Works Financial Statements and the Consolidated Financial Statements were completed on February 17, and February 26, 1951, respectively.

Memorandum billings were received from Knolls Atomic Power Laboratory covering General Engineering Laboratory Assistance to Hanford in the amount of $187 599 K.A.P.L. Assistance to Hanford of $5 401, and Research Laboratory Assistance of $209.

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General Accounting Division

INTERNAL AUDIT SECTION

Four audits were begun during February, 1951 and are expected to be completed during the month of April.

A study is being made of the procedures followed by Employee and Community Relations Divisions in processing termination clearances of employees leaving the employ of the Company. The purpose of this study is to determine if General Electric Company is being relieved of all responsibility for materials and equipment issued to employees and for outstanding obligations owed the Company when the employee terminates.

The Reserve for Miscellaneous Inventory Adjustments account is being reviewed by investigating several entries made during the month of January 1951 for the purposes of (1) determining if the charges and credits made to the account are in order and (2) determining if explanations of transactions and entries are accurate and complete.

Audit of revenue and cash change fund of School of Nuclear Engineering covering the period June 16, 1950 through December 31, 1950 was begun during February. The purpose of the audit was (1) to determine if the routines and records relating to the handling of cash are adequate and (2) to determine if all revenue from tuition and sale of textbooks is being collected and reported and (3) to audit their cash change fund.

Audit programs and working papers have been completed and reports are being written for the following audits: (1) Timekeeping, (2) Hospital Revenue, (3) Bus Revenue, and (4) Receiving and Shipping.

Work is being continued on the detail audit of State Business and Occupational taxes paid by General Electric Company to the State of Washington during the period September 1, 1946 through December 31, 1950.

One auditor was assigned to spend several days with Stores Division personnel to continue to assist them in effecting changes recommended in inventory control procedures. Personnel are being trained by Stores Division to handle control desk activities and monthly reconciliation of inventory sub-accounts, in accordance with revised procedures. During March, the auditor will again help with monthly reconciliation of inventory sub-accounts and will assist the Control Desk clerks in any problems that arise of an accounting nature.

Field work is being continued in connection with the physical inventory procedures of Purchasing and Stores Divisions.

A review was made of U. S. Atomic Energy Commission Bulletin GM-175, which covers accounting procedures for handling plant and equipment items, particularly those for handling spare equipment held in storage. Spare equipment held in storage for future service in the operating programs , while of a capital nature, will be held in the custody of Stores Division and recorded on stock record cards. Considerable spare equipment is presently being purchased in connection with the

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INTERNAL AUDITING (CONT'D.)

current construction program. Spare equipment of a capital nature, which is now recorded as inventory, as well as spare equipment being purchased, will now be accounted for in a new plant and equipment account.

MEDICAL ACCOUNTING

Out-patient invoices numbered 2 101 and amounted to $9 598 in February as compared to 2 296 invoices amounting to $9 995 in January. This represented a decrease of 195 invoices totaling $397.

In-patient revenue decreased $601. However, the adult patient-day census increased to a new high of 90.7 as compared to 86.9 in January.

Daily sales averaged $2 071 during February as compared with an average of $1 902 during January.

A total of 39 claims in the amount of $1 010 were submitted this month to Fort Lewis for services rendered Military Personnel. Reimbursement on 16 claims in the amount of $636 on prior months' billings was received during the month.

Blue Cross claims paid during the month numbered 37 and amounted to $3 298.

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	25	6 631
Collections by Yakima Adjustment Service	47*	2 106
Accounts recalled	8	1 439
Accounts at Y.A.S. - 2-28-51	113	19 291

*Includes 23 accounts paid in full and 24 accounts partially collected.

In connection with the fourth quarter budget review, FY 1951 third and fourth quarter estimates were reviewed. Minor revisions were made in the quarterly estimates, particularly in the hospital budget. The February operating report of the Medical Divisions will reflect the revised budget amounts.

Instructions, together with work schedules, were prepared and forwarded to each section head in the Medical Divisions for use in preparing a budget for FY 1953 and revision of budget for FY 1952.

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MEDICAL ACCOUNTING (CONT'D)

During the past few weeks the Medical Divisions accounting supervisor together with a Medical Division staff member made visits to several hospitals in the Pacific Northwest for the purpose of obtaining statistical, operating costs, fee schedule rates and other general information. The information accumulated will be analyzed and presented in report form showing comparisons between the various hospitals and Kadlec Hospital.

PLANT ACCOUNTING

Field clerks of this Section continue to inventory selected categories of equipment as the need becomes apparent. At present, only two men are engaged in this work. The A.E.C. has recommended that this activity be increased to provide more comphrehensive coverage of the Plant on a continuing basis. Present indications are that at least four additional field clerks will be needed to carry out this program.

A preliminary draft of a Construction Accounting Manual, issued by the Atomic Energy Commission, was reviewed and comments were submitted informally to the A.E.C. Office of Finance. Certain provisions in the Manual which are at variance with present practices were noted and will be reviewed further by the A.E.C. before the Manual is issued in final form.

During the six month period ended December 31, 1950, an average of 530 items were added to the Plant Accounts each month. There were no major projects unitized during the period and the above average resulted chiefly from incidental purchases, transfers, etc. During the same period an average of 290 items were retired each month.

Other activity in the Plant Accounting Section included a review of an average each month of 2430 Declarations of Excess, 1400 Purchase Orders, 4500 Receiving Reports, and 620 Store Orders (from Excess Materials Inventories).

During the same period, an average of 240 Shipping Orders and 350 Property Transfers were processed each month.

An average of 830 Work Orders were reviewed each month during the period. During the month of February, a review of Work Orders currently in process indicated that approximately 37% of all Manufacturing Divisions Work Orders and 25% of General Divisions Work Orders were not coded properly with respect to the distinction between capital and expense. As a result of this review, the coding was corrected prior to actual booking of costs.

Municipal, Real Estate and General Services Divisions Work Orders are checked by their cost section which eliminates coding errors to a great extent. Questionable work orders or those that possibly will be capitalized are forwarded to Plant Accounting for classification and coding.

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General Accounting Division

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PAYROLLS

During the month of February there were 130 removals from payroll, including 3 transfers to other units of the Company. There were 170 additions to the Payroll including 1 transfer from another unit of the company. The result is a net increase of 40 employees on the payroll.

* * * * * * * * * * *

Washington's Birthday, February 22, 1951, was an observed holiday at Hanford Works, and weekly salary checks for employees of the outer areas for week ended February 18, 1951 were delivered to the areas on Wednesday, February 21, 1951 between the hours of 8:00 PM and 11:00 PM. Preparation of the payroll was completed without overtime during the week. However, 9 overtime hours were required for delivery of checks to the outer areas.

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State Income Tax returns were prepared for all employees transferred to Hanford Works from other units of the General Electric Company and employees assigned to work in other states during 1950.

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Semi-annual analysis of Monthly Payroll and Salary Adjustments segregated by salary brackets for six months ended December 31, 1950 was prepared and transmitted to the General Office on February 12, 1951.

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Military Duty Allowance equivalent to one month's salary was paid during February to six employees who entered the Armed Forces. The gross payment to these employees amounted to $1,812.48. A total of $9,738.30 has been paid to 30 weekly paid employees and 2 monthly paid employees for Military Duty Allowance as of February 28, 1951.

* * * * * * * * * * *

There were 121 employees as of February 28, 1951 who had left the Company to enter the Armed Forces of the United States as follows:

	Called to Duty	Volunteered For Duty	Total
Reserve Officers	6	3	9
Enlisted Reserve	25	4	29
National Guard	1	-0-	1
Selective Service	27	55	82
Total	59	62	121

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An analysis of salaries paid to employees outside the state of Washington was prepared during the month of February in connection with audit of Business and Occupation Taxes for the years 1947 through 1950.

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The 3% general salary increase (minimum 4¢ per hour) applicable to July 2, 1950 rates, effective September 18, 1950, for employees represented by the H.A.M.T.C. and for employees represented by Local 201, Building Trades Service Employees Union, was paid on a current basis beginning February 12, 1951 to 3,100 employees. The retroactive portion of the General Adjustment covering the period September 18, 1950 through February 11, 1951 will be included in salary checks distributed on March 16, 1951. Approximately 600 man hours were expended during February on the calculation of this retroactive payment.

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Approximately 1,860 man hours were expended during February in preparing individual Employee Benefit Plans Letters which will be mailed to all employees on March 9, 1951. As of February 28, 1951 this work was 97% complete.

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During the month of February, 236 man hours were expended on a special payroll analysis.

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New authorization cards for check-off of Union Dues were received by Weekly Payroll Division for 46 employee members of 7 unions affiliated with Hanford Atomic Metal Trades Council, as follows:

Union	Number
International Union of Operating Engineers, Stationary Local #280	9
International Chemical Workers Union, Local 369	6
International Brotherhood of Teamsters, Warehousemen, Garage Employees & Helpers, Local 829	3
Instrument Craftsmen's Guild	5
United Association of Journeymen & Apprentices of the Plumbing & Pipe Fitting Industry of the United States and Canada, Local 598	14
Hanford Industrial Firemen, Local #37	5
United Brotherhood of Carpenters and Joiners of America, Local Union No. 2403	4
Total	46

As of February 28, 1951 authorization cards for check-off of union dues were in effect for 885 employee members of 13 unions affiliated with the Hanford Atomic Metal Trades Council, and 19 employee members of the Building Service Employees International Union, Local 201.

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There were 38 time cards received late in payroll during the month of February, as follows:

Week Ended	Number
2- 4-51	12
2-11-51	7
2-18-51	-0-
2-25-51	19
Total	38

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It is significant that no time cards were received late in payroll for the week ended February 18, 1951. Office Letter No. 108 covering distribution of salary checks to employees on February 23, 1951 requested cooperation of supervision in following the normal schedule for turning in time cards for week ended February 18, 1951 in order to facilitate work of preparing the payroll during the holiday week.

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In addition to regular payroll addressograph work approximately 120,700 items were addressographed for other divisions.

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One garnishment case was pending as of February 28, 1951.

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During the month of February, there were two salary checks reported lost. One check was subsequently located by the employee. The other check was replaced after advising the bank to stop payment on the original check. There were no cases of lost salary checks not reissued as of February 28, 1951.

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At the request of Division Managers or their representatives, approximately 750 salary checks were held in Payroll Division where they were distributed to Division Representatives or individual employees who were scheduled off on Thursday and Friday.

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As of February 28, 1951 there were approximately 760 employees authorized to pick up salary checks, U. S. Savings Bonds and Custody Receipts. During February, 13 employees were added to the list, and one employee was removed from the list.

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During the month of February, 1,651 U. S. Savings Bonds having a maturity value of $85,850 were withdrawn from the G. E. Employees Savings and Stock Bonus Plan by 173 participating employees. This is the largest number of bonds withdrawn in any one month since the G. E. Savings and Stock Bonus Plan was placed into effect. U. S. Savings Bonds and Custody Receipts having a maturity value of $149,150, covering purchases by employees through payroll deductions in January were delivered to employees on February 23, 1951. There were 751 U. S. Savings Bonds and 2,335 Custody Receipts delivered.

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Eight Hanford Works employees reported the loss of 17 Custody Receipts and request was made for replacement during the month.

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As of February 28, 1951, the percentage of Hanford Works employees participating in the G. E. Employees Savings and Stock Bonus Plan and General Electric Savings Plan and the annual going rate of payroll deductions for both plans was as follows:

Percentage of Participation

	Mfg.	Design & Construction	Municipal, Real Estate & General Services	Other	Total
G. E. Employees Savings and Stock Bonus Plan	41.9%	32.0%	36.9%	36.9%	38.6%
General Electric Savings Plan	11.8%	8.4%	9.2%	8.6%	10.0%
Both Plans	47.6%	36.9%	41.4%	41.5%	43.7%

Annual Going Rate of Deductions

	Mfg.	Design & Construction	Municipal, Real Estate & General Services	Other	Total
G. E. Employees Savings and Stock Bonus Plan	$650 383	$ 95 019	$105 071	$524 525	$1 374 998
General Electric Savings Plan	222 582	24 489	33 520	144 947	425 538
Total	$872 965	$119 508	$138 591	$669 472	$1 800 536

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During the month of February, checks were delivered to 47 participants in the G. E. Employees Savings and Stock Bonus Plan who withdrew during the year 1951 U. S. Savings Bonds purchased in 1948 or 1949. These checks represent income for the years 1949 and 1950 on General Electric common stock credited to their accounts.

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Authorizations for deductions from payroll for the purchase of safety shoes were received from 180 employees in February.

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In February, a total of 6,199 items were submitted to Weekly Payroll Division for deduction from salaries of Weekly Paid employees for rent and telephone charges as follows:

House Rents	3 221
Dormitory Rents	638
Trailer Rents	95
Barracks Rents	20
Telephone Accounts	2 225
Total	6 199

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During the month of February, continuity of service was restored by the Pension Board to 1 Hanford Works employee.

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During February, preferential rates were eliminated in 31 cases where employees were transferred or reclassified. As of February 28, 1951 there were approximately 1,100 employees having preferential rates.

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203 Weekly Paid employees were scheduled to begin their 1951 vacation in February. Approvals were received during the month to defer one week of the 1951 vacation to 1952 for 16 weekly paid employees and 26 employees on the Monthly Payroll.

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Under the G. E. Pension Plan 41 employees became eligible for participation in February. Enrollment cards were received from 21 of these employees and 15 elected not to participate in the Plan. Five of the newly eligible employees have not returned either an enrollment card or a "waiver card".

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During February, 606 disability claims were processed and forwarded to Metropolitan Life Insurance Company. 928 checks totaling $55,756.68 for 711 claims were received in February from the Insurance Company and forwarded to employees, hospitals, and surgeons, as follows:

	Group Health Insurance Plan	New Insurance Plan	Total
Number of checks	101	827	928
Number of claims	77	634	711
Amount of benefits	$5 644.19	$50 112.49	$55 756.68

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The following bank reconciliations were complete at February 28, 1951:

Weekly Salary through #232 - Week ended February 4, 1951
Weekly Salary Vacation #232 - Week ended February 4, 1951
Bond Account - December
Monthly Payroll #53 - January 1951

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PLANT SECURITY AND SERVICES DIVISIONS

MONTHLY REPORT - FEBRUARY 1951

SUMMARY

There were no major injuries during the month. The major injury frequency rate for the year to date is 0.39.

There were four fires in the industrial areas with loss amounting to $602.00.

Laundry volume decreased slightly in the 200-West Laundry and remained approximately the same in the 700 Area Laundry. The new 200-W Area Laundry is now on normal operation and volume is being handled on five shifts per week.

Volume of clerical services rendered increased slightly in all groups except Mail which was somewhat lower than January. The Printing Section achieved a sizable reduction in the backlog of printing orders on hand; however, overtime work continues due to the urgency of some large orders.

The Records Service Center, Building 712, was accepted from sub-contractor with minor exceptions on February 12, 1951.

Improvements in forms and procedures designed by the Office Methods Division resulted in an estimated savings of $2303. of which $1348. will be on a recurring annual basis.

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PLANT SECURITY AND SERVICES DIVISIONS

MONTHLY REPORT - FEBRUARY 1951

ORGANIZATION AND PERSONNEL

Number of employees on payroll:	Beginning of month	End of Month	Increase	Decrease
Staff	3	3		
Patrol and Security	597	619	22 (a)	
Safety & Fire Protection	144	145	1 (b)	
Office Services (General Services, Clerical Services, Records Control and Office Methods)	230	246	16 (c)	
TOTALS	974	1,013	39	

NET INCREASE: 39

(a) - Patrol and Security

27 - New Hires
1 - Returned from Leave of Absence
4 - Transferred from other Divisions
3 - Removed from Roll due to Leave of Absence
7 - Terminations

(b) - Safety and Fire Protection

2 - New Hires
1 - Transferred from "S" Division
2 - Transferred to other Divisions.

(c) - General Services

7 - New Hires
1 - Transferred from Engineering and Construction Services
2 - Re-engaged
1 - Returned from Leave of Absence
3 - Removed from Roll due to Leave of Absence

Clerical Services

14 - New Hires
2 - Transferred from other Divisions
7 - Transferred to other Divisions
1 - Termination

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SAFETY AND FIRE PROTECTION

Injury Statistics

Days since last major injury	28
Accumulated exposure hours since last major injury	1,215,649
Major injury Frequency Rate (1-1-44 through 2-28-51)	0.79

	January	February	Year to Date	Comparative Period, 1950
Major Injuries	1	0	1	1
Sub-Major Injuries	0	1	1	9
Minor Injuries	287	260	547	613
Exposure Hours	1,335,340	1,215,640	2,550,980	2,329,766
Major Injury F/R	0.75	0.00	0.39	0.43.
Major Injury S/R	0.254	0.00	0.118	0.005
Minor Injury F/R	2.14	2.13	2.14	2.63

Sub-Major Injury No. 193

On February 26, at approximately 12:50 P.M., an employee of the 100-F Area Maintenance Division sustained a transverse fracture of the left small toe when a piece of sheet metal fell and struck it.

Employee and co-worker were handling a 4' x 10' sheet of metal when a sudden gust of wind blew around corner and the metal buckled; pulling out of employee's grasp and falling on his foot. He was wearing safety shoes, but material struck behind the safety cap, resulting in the fracture.

Near Serious Accident No. 51-3

On February 27, at 8:45 A.M., an explosion of coal dust or gas, or a combination of both, occurred in the No. 3 silo, 3000 Area Steam Plant, while an operator was using an air lance to loosen coal in the chute from the silo to the feeder on the firing floor. There were no injuries, but considerable damage resulted when the roof of the silo was pushed up by the force of the explosion.

The silo was completely cleaned out in November, 1950, and had been partially cleaned since. On Friday, February 23, it was filled; and since that date, coal has been allowed to feed out for a routine bunker clean-out. The silo had been filled with a mixture of wet coal direct from the cars and some hot dry coal from an old storage pile which is separated from the new storage pile and which is being used up. The silo holds 225 tons and there were 60 tons in the bunker at the time of the explosion.

The coal was hanging up in the chute to the feeder and the operator was attempting to loosen it by using an air lance inserted through a port in the chute. While this was being done, the explosion occurred.

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Plant Security and Services Divisions

Safety Activities

The pipe treatment vats at the White Bluffs pipe yard were reviewed. There is no hazard there to G.E. employes, however, the contractor has a trichlorethylene vapor problem covering his own employees.

The 300 Area Safety Engineer attended the final meeting of the 300 Area Civil Defense Committee. The procedure for the Area is complete and in effect. A dry run is scheduled for March 9 at 3:00 P.M.

Attendance at Redox training sessions have continued whenever possible in preparation for operations problems.

During February, twelve S Division Trainee Supervisors participated in the safety and fire training program conducted by the Safety Division. The trainees submitted a total of approximately 75 suggestions and recommendations for safety in operation inspections.

The activities of the Morrison Knudsen Company have been followed very closely. There have been no incidents of significance since the meeting with their representatives referred to in last month's activity report. The work has proceeded safely and the highest degree of cooperation has been given our requests by the local Morrison Knudsen representatives.

A plot and script for the 700 Area Safety movie has been developed by the Public Functions group and the Safety Division is assisting in the filming which was begun this month.

An Area Accident Prevention Committee has been organized including members from all crafts and Municipal Division shops in the 700 Area. Participation and interest by the men is showing good results.

A complete survey of the safety coverage in the White Bluffs Area was conducted and as a result a supervisor's safety training program and individual safety orientation of employees will be conducted by the Safety Engineer in the 100-H Area.

Fire Protection Activities

Current leakage through wood pole structure to ground on the 230 KV loop line caused a fire in the pole with a loss estimated at $600.00, making it necessary to replace the structure. The fire occurred February 18 at 4:30 P.M. and was located between 251 Sub-Station and Route 4-N. No loss is shown on this fire to equipment caused by electrical failure nor production interruption.

The Service Firemen are in the process of giving gas masks, soda acid and foam fire extinguishers their yearly service.

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Fire Protection Activities (Contin)

All firemen are being given the Standard First Aid Course.

Training drills held during the month: 225

Fire Protection Surveys were completed on the following buildings: 184-B, 292-B, 292-AB, 292-BB and 314.

An acceptance inspection was made of building 1703-B.

The Fire Alarm Loop in 100-F Area was checked over and one pressure connector was added to all line splices.

The 200-East Area emergency fire phone has been extended to the 200-West Area Fire Station.

Sixteen supervisor trainees were given training in fire procedures and practices.

The Electrical Division was asked to make discharge tests of the fire alarm equipment batteries in the 200 Areas.

Sprinkler systems in the 300 Area were tested.

Arrangements have been made to give fire supervision in the 300 Area additional training on Health Instrument problems.

Six training lectures on Redox and TBP were attended during the month.

Industrial Fires

Division	Area	No. of Fires	Cause	Loss
Transportation	200-E	1	Loose rectifier on heavy duty generator	$2.00
Electrical	Outer	1	Static electricity	$600.00
P Division	300	1	Possible short in fork lift battery charger	None
Transportation	100-H	1	Material being controlled burned not completely extinguished	None
TOTAL INDUSTRIAL FIRES		4	TOTAL LOSS	$602.00

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OFFICE SERVICES DIVISIONS

General Services

Plant Laundry (Building 2723)

	January	February
Coveralls - Pieces	40,346	39,792
Towels - Pieces	7,270	6,677
Miscellaneous - Pieces	113,225	97,219
Total Pieces	160,841	143,688
Total Dry Weight - Lbs.	219,957	207,688

Richland Laundry (Building 723)

Flatwork - Lbs.	59,466½	60,153
Rough Dry - Lbs.	19,485	18,010½
Finished - Lbs.	2,340½	2,132
Total Pieces	106,492	105,187
Total Dry Weight - Lbs.	81,292	80,295½

Monitoring Section

Poppy Check - Pieces	124,080	103,247
Scaler Check - Pieces	162,905	147,200
Total Pieces	286,985	250,447

Clerical Services

Mail Room

A notice was sent to all supervisors during the month regarding the embargo on mail caused by the railroad strike. Wherever items were of a critical nature mail was broken down to the limits allowed by the embargo and forwarded.

	January	February
Pieces of internal mail handled	595,892	510,139
Pieces of postal mail handled	82,254	64,863
Pieces of registered mail handled	1,157	923
Pieces of insured mail handled	302	277
Pieces of special delivery mail handled	335	289
Total Mail Handled	679,940	576,489
Total Amount of Postage Used	$2,484.21	$1,623.96
Total Teletypes handled	8,015	6,622

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Office Equipment Section

	January	February
Office Machines repaired in shop	267	266
Office Machine Service Calls	430	453
Total Machines Services	697	719

Printing Section

	January	February
Multilith orders received	312	279
Multilith orders completed	300	299
Multilith orders on hand	99	79
Stencil & fluid duplicating orders received	1,137	945
Stencil & fluid duplicating orders completed	1,150	991
Stencil and fluid duplicating orders on hand	62	16

Stenographic Services Section

	January	February
Dictation and Transcription	2:00	33:00
Machine Transcription	12:25	60:00
Letters	248:40	105:15
Manuals and Procedures	119:10	117:00
Duplicating - Stencils, Ditto	354:45	224:00
Special	346:50	753:15
Meeting Time	8:00	:00
Training	310:10	29:30
Absentee Time	:00	8:00
Holiday and Vacation	128:00	112:00
Unassigned Time	72:00	75:00
Total	1,438:10	1,517:00
Employees loaned to other Divisions	766:20	692:45
Total Hours Available	2,204:30	2,209:45

Records Control Division

Records Service provided for:	444 persons
Records cartons issued:	155 Standard Cartons
Records reboxed:	225 Standard Cartons
Filing service provided Purchasing & Stores Divisions:	227 Pieces

Equipment received for the new Records Center this month consisted of two small records service warehouse trucks.

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Records Control (Contin)

Quantity of records received, processed and stored:

Design & Construction Division	14	Standard	Cartons
Electrical Division	3	"	"
General Accounting Division	58	"	"
Health Instrument - Development Division	9	"	"
Health Instrument - Operational Division	4	"	"
Maintenance Division	1	"	"
Medical Division	41	"	"
Municipal General Services Division	2	"	"
Project Engineering Divisions	4	"	"
Stores Division	37	"	"
Technical Services Division	12	"	"
Transportation Division	4	"	"
TOTAL	189	Standard	Cartons

Boxes of records reboxed for transfer to 712 Building: 225

The Records Service Center, Building 712, was accepted from sub-contractor with minor exceptions February 12, 1951.

All work necessary for moving records from 712-B to 712 Building was completed February 28.

The uniform filing method was installed during February for the Excess and Salvage Division.

Office Methods Division

	January	February
Printing orders received	525	563
Printing orders cancelled	30	46
New numbers assigned	157	99
Forms designed	49	53

Five forms, formerly set up on preprinted ditto masters, have been converted to Duplimat masters and prepared by our printing section. The per stencil cost has been reduced from 25¢ to .06¢. Annual usage of these masters is approximately 600, which represents a savings of $120.00.

A report covering recommended revisions to the Hanford Works Monthly Report has been submitted to Mr. Lail. If the recommended revisions outlined in this report are adopted, they will effect an annual saving in reproduction costs alone of approximately $3100.

Miscellaneous savings created during February as a result of forms design and forms control have amounted to $2203. of this amount, $1128. will be on a recurring annual basis.

Total estmated savings were $2303. of which $1348 will be on a recurring annual basis.

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PATROL AND SECURITY

General

On February 5, an "exclusion" area Kardex File was completed of all personnel with clearance to the construction end of the 234-5 Building. This file was placed into effect February 6.

Effective at 8:00 A.M., February 12, the 221-U Construction "Exclusion" Area Badge House and Vehicle Gate posts were discontinued. At that time, other posts controlling access into the 221-U Canyon and the 224-U Building were established, and double badge systems installed at other points. Control posts for the entrance and exit to the 221-U Canyon and the 224-U Building were placed at the entrance doors. Also, one additional post was established February 12 in the 221-U Canyon which will consist of one patrolman to open doors to the excluded parts of the building for authorized personnel.

Beginning February 13, the Richland Laundry and Dry Cleaning Company began operating under its new contract to furnish delivery and pickup service directly to the several patrol areas, thereby eliminating the service formerly furnished by the Patrol Administration Section.

Security Field Inspection Activities:

Personal contacts made concerning missing documents:	53
Physical searches for documents conducted:	5
Documents located and accounted for:	45
File combinations changed:	18
Classes conducted at the Patrol Training School:	8
Investigations and reports written on unattended documents, compromised file combinations, etc.	17

There were 215 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 268 Security Meetings held and attended by 3,644 General Electric employees.

A representative of the Security Division showed the film "On Guard" at six meetings during the reporting period to 180 employees.

Representatives of the Security Division showed the film entitled "Communism" at 110 meetings to 3,300 employees

"Q" orientation talks were given to 58 employees by representatives of the Security Division during the month.

Practice evacuations were held as follows:

100-F Area	11:32 A.M.	2-8-51
100-B	10:05 A.M.	2-13-51
100-D	10:05 A.M.	2-28-51

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Plant Security and Services Divisions

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Patrol & Security (Contin)

Practice Blackouts were held as follows:

100-B	9:46 P.M.	2-4-51
100-B	4:35 A.M.	2-5-51
100-D	2:20 A.M.	2-8-51
P-11) 101)	9:05 P.M.	2-11-51
100-D	1:31 A.M.	2-12-51
101	1:25 A.M.	2-14-51
100-H	10:10 P.M.	2-15-51
100-B	9:59 P.M.	2-16-51
P-11) 101) 100-F)	9:30 P.M.	2-17-51
100-D	5:10 A.M.	2-18-51
200-E	10:12 P.M.	2-19-51
200-E	9:03 P.M.	2-20-51
100-H	1:31 A.M.	2-21-51
100-B	1:11 A.M.	2-22-51
100-B	9:42 P.M.	2-27-51
P-11	4:05 A.M.	2-22-51

Practice mobilizations were held as follows:

100-B	Plan A	2:15 A.M.	2-11-51
		1:17 P.M.	2-25-51
100-D	Plan A	2:16 A.M.	2-11-51
		9:31 P.M.	2-13-51
		2:10 A.M.	2-19-51
		1:17 P.M.	2-25-51
100-F	Plan A	9:31 P.M.	2-13-51
		9:15 P.M.	2-17-51
		6:02 P.M.	2-26-51
	Plan B	9:15 P.M.	2-17-51
	Plan D	9:15 P.M.	2-17-51
P-11	Plan A	4:42 A.M.	2-22-51
100-H	Plan A	9:31 P.M.	2-13-51
		10:10 P.M.	2-15-51
		2:00 A.M.	2-19-51
		6:02 P.M.	2-26-51
	Plan B	9:15 P.M.	2-17-51
200-E	Plan A	2:07 P.M.	2-1-51
		6:11 P.M.	2-22-51
		1:35 A.M.	2-28-51
	Plan B	9:45 A.M.	2-11-51

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Patrol & Security (Contin)

Practice Mobilizations:

200-W	Plan A	2:07 A.M.	2-1-51
		6:11 P.M.	2-22-51
		1:35 A.M.	2-28-51
	Plan B	9:45 A.M.	2-11-51
		2:15 A.M.	2-25-51
300	Plan A	7:49 P.M.	2-27-51

The seventh revision of the 200-W Operations Evacuation Plan was issued February 15 for all Operations personnel concerned.

A total of 658 pat searches were made during the month. Escorts handled totalled 326.

The Patrol Division made 12 ambulance runs for the Medical Division during the month.

Patrol Training School activities:

The training courses received for the month of February were as follows:

Security	1 hour
Mobilization Plans for Industrial Areas	1 "
Security Patrol Policy	1/2 "
Health	1/4 "
Pistol	1 1/2 Hours
Riot Gun	1 1/2 "
Machine Gun	2 1/4 "

During the month of February, six supervisors received added and special instruction in the operation of the .30 caliber carbine, riot gun and sub-machine gun. This is for the purpose of enabling the supervisors to supplement the training of the men during their regular training assignments.

A Patrol Manual inspection covering all shifts and all areas was completed February 27.

Clearances

There were 2,953 badge transactions completed during February 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 FEBRUARY 28, 1951

Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
MEDICAL DIVISION							
I. Visits to other Installations							
B. C. Scudder to: AEC Bio-Medical Meeting New York, New York	Attend AEC meeting for laboratory and medical directors	- -	2-20-51	2-26-51	X		
B. C. Scudder to: Brookhaven Nat'l Lab. Upton, L I., New York	Discuss mutual health problems	- -	20-20-51	2-26-51	X		
ENGINEERING AND CONSTRUCTION DIVISIONS							
I. Visitors to this Works							
S. O Rosera Barrett & Logan Portland, Oregon	Liaison on sub-contract G-341	J. R. Kelly O. H. Pilkey R. C. Hoffman	2-12-51	2-14-51		X	
J. R. Murtaugh Barrett & Logan Portland, Oregon	Liaison on sub-contract G-341	J. R. Kelly O. H. Pilkey R. C. Hoffman	2-12-51	2-14-51		X	
C. L. Cunningham Barrett & Logan Portland, Oregon	Liaison on sub-contract G-341	J. R Kelly O. H. Pilkey	2-12-51	2-14-51		X	
L. L. Ketchen Charles T. Main, Company Boston, Massachusetts	Liaison on sub-contract G-349	J. R. Kelly W. C. Royce J. L. Boyd	1-31-51	2-4-51		X	Redox

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
A. J Curtis Charles T. Main, Company Boston, Massachusetts	Liaison on sub-contract G-349	J. R. Kelly W. C. Royce J. L. Boyd	1-31-51	2-4-51		X	Redox
C. C. Starratt Charles T. Main, Company Boston, Massachusetts	Liaison on sub-contract G-349	J. R. Kelly W. C. Royce J. L. Boyd	2-1-51	2-3-51		X	Redox
B. S. Malin Charles T. Main, Company Boston, Massachusetts	Liaison on sub-contract G-349	J. R. Kelly W. C. Royce J. L. Boyd	2-1-51	2-3-51		X	Redox
E. G. MacKay Charles T. Main, Company Boston, Massachusetts	Liaison on sub-contract G-349	J. R. Kelly W. C. Royce J. L. Boyd	2-1-51	2-3-51		X	Redox
L. S. Rosener, Jr. Leland S. Rosener San Francisco, California	Liaison on sub-contract G-304	J. R. Kelly W. C. Royce	2-15-51	2-16-51		X	-
D. H. Maxwell Alvord, Burdick & Howson Chicago, Illinois	Liaison on sub-contract G-330	J. R. Kelly O. H. Pilkey	2-15-51	2-16-51		X	-
F. J. Champlin, Jr. General Engineering Laboratory Schenectady, New York	Installation, consultation and test of 432 Project equipment	G. Thayer	2-7-51	2-16-51	X		200-W 234, 235, 231
E. P. Diehl General Engineering Laboratory Schenectady, New York	Installation, consultation and test of 432 Project equipment	G. Thayer J. E. Kaveckis	2-21-51	3-2-51	X	234-5 Const. 200-W Const.	200-W 231, 234, 235
R. N. Poole General Engineering Laboratory Schenectady, New York	Installation consultation and test of 432 Project equipment	G. Thayer	2-21-51	4-13-51	X	234-5 Const. 200-W Const.	200-W 231, 234, 235

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
K. L. Boring General Engineering Laboratory Schenectady, New York	Installation consultation on 432 Project	G. Thayer	1-23-51	3-2-51	X	200-W	234 235
C. A. Hansen, Jr. Knolls Atomic Power Laboratory Schenectady, New York	Consultation and assistance to Hanford	P. E. Lowe H. E. Grantz G. H. Syrovy	2-14-51	2-17-51	X	100-H	105
M. Fox Brookhaven National Laboratory Upton, L.I., New York	Discuss design of new shield	H. E. Grantz	2-4-51	2-7-51	X		
D. K. Davies Brookhaven National Laboratory Upton, L. I., New York	Discuss design of new shield	H. E. Grantz	2-4-51	2-7-51	X		
D. H. Marquis General Engineering Laboratory Schenectady, New York	Consultation on 432 Project	G. Thayer	2-5-51	2-10-51	X	200-W	231, 234, 235
J. E. Brown, Jr. General Engineering Laboratory Schenectady, New York	Consultation on 432 Project	G. Thayer	2-5-51	2-10-51	X	200-W	231, 234, 235
II. Visits to other Installations							
G. S. Cochrane to: General Eng. Laboratory Schenectady, New York	Liaison work on 432 Project	D. H. Marquis	2-17-51	2-23-51	X		
J. W. Conley to: Charles T. Main, Co. Boston, Massachusetts	Liaison and negotiations on sub-contract G-283	R. A. Moncrieff L. L. Ketchen R. T. Colburn	2-13-51	2-24-51		X	
H. G. Dixon to: Kellex Corporation New York, New York	Engineering consultation	J. S. Atwood	2-7-51	2-11-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass	Areas
H. G. Dixon to: Vulcan Copper Company Cincinnati, Ohio	Engineering consultation	Mr. Romell	2-5-51	2-6-51		X	
W. J. Dowis to: University of Southern Cal. to: University of Cal. Los Angeles to: Cal. Inst. of Technology	Recruit technical personnel	S. Scarge	2-19-51	3-2-51		X	
J. M. Fox to: University of Washington Seattle, Washington	Recruit technical personnel	D. Wessman	2-27-51	2-28-51		X	
R. C. Hollinghead to: Foote Brothers Chicago, Illinois	Design consultation	Mr. Arnold	2-12-51	2-15-51		X	
R. C. Hollinghead to: Proportioneers Providence, Rhode Island	Design consultation	Mr. Lowe	2-12-51	2-15-51		X	
R. C. Hollingshead to: Kellex Corporation New York, New York	Design detail consultation on project C-362	J.S. Atwood	2-14-51	2-23-51	X		
R. C. Hollinghead to: Johnston Pump Company Los Angeles, California	Design consultation with equipment vendor	Mr. Brown	2-28-51	Still gone		X	
R C. Hollingshead to: Stearns-Rogers Denver, Colorado	Design consultation with equipment vendor	Mr. Rosengran	2-26-51	Still gone		X	
G. L. Locke to: Cal. Inst. of Technology Pasadena, California	Consultation on heat transfer research	F. Gunther	2-1-51	2-1-51	X		

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Name - Organization	Purpose of Visit	Person Contacted.	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
G, L. Locke to: North American Aviation Downey, California	Consultation on heat transfer research	R. L. Stoker	2-2-51	2-2-51	X		
G. L. Locke to: University of California Los Angeles, California	Consultation on heat transfer research	F. E. Romie	2-3-51	2-3-51		X	
G. L. Locke to: California University Berkeley, California	Consultation on heat transfor research	T. H. Hazlett	2-4-51	2-4-51		X	
R. C. Mann to: Kellox Corporation New York, New York	Consultation on instru-mentation	J S. Atwood	1-28-51	2-3-51	X		
R. C. Mann to: Hathaway Instrument Co. Denver, Colorado	Consultation on instru-mentation	J. L. Shelane	1-28-51	2-3-51		X	
R. C. Mann to: Potter Aeromautical Co. Newark, New Jersey	Consultation on instru-mentation	E. L. McCleary	1-28-51	2-3-51		X	
A. L. Pock to: General Eng Laboratory Schenectady, New York	Preparation of C-413 design list	D. H. Marquis	2-13-51	2-23-51	X		
P. P. Smith to: Aircraft Gas Turbine Div. Seattle, Washington	Personnel interview	C. R. Plum	2-15-51	2-17-51		X	
W. Sale to: Kellex Corporation New York, New York	Review accounting and audit procedures	B. R. Prentice	2-13-51	2-14-51	X		
W. Sale to: Knolls Atomic Power Lab. Schenectady, New York	Review accounting and audit procedures	E. E. Baker	2-15-51	2-15-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
HEALTH INSTRUMENT DIVISIONS							
I. Visitors to this Works							
J. N. Wilson E. I. du Pont de Nemours & Co. Wilmington, Delaware	Consultation on health instrument problems	H. M. Parker F. G. Tabb	2-19-51	2-23-51	X		
M. H. Smith E. I. du Pont de Nemours & Co. Wilmington, Delaware	Consultation on health instrument problems	H. M. Parker F. G. Tabb	2-19-51	2-20-51	X		
II. Visits to other Installations							
M. L. Barad to: Division of Engineering U. S. Atomic Energy Commission Washington, D. C.	Attend symposium of meteorologists at AEC installations	G. G. Brown	2-1-51	2-2-51	X		
H. A. Kornberg to: AEC Bio-Medical Meeting New York, New York	Attend AEC meeting of laboratory and medical directors	- -	2-20-51	2-26-51	X		
J. H. Rediske to: Brookhaven Nat'l Lab. Upton, L.I., New York	Discuss botanical investigations at Brookhaven Nat'l Lab.	Dr. Singleton Dr. Gibbs	2-7-51	2-9-51	X		
INSTRUMENT DIVISION							
I. Visits to other Installations							
E. S. Day, Jr. to: Carbide & Carbon Chem. Co. Oak Ridge, Tennessee	Discuss leak detection problems	L. Lieber	2-12-51	2-14-51	X		
E. S. Day, Jr. to: Oak Ridge National Lab. Oak Ridge, Tennessee	Discuss leak detection problems	Mr. Ladniak	2-12-51	2-14-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
R. E. Connally to: Radiation Laboratory Berkeley, California	Consultation, discussion and observation re devices similar to HW instrumentation	A. Ghiroso	2-15-51	2-16-51	X		
PLANT ENGINEERING DIVISIONS							
I. Visits to other Installations							
S. F. Schuro to: Atomic Energy Commission Arco, Idaho	Coordination of P-10-X Program with ARCO	D. Reed D. Collette (American Cyanamid Co.) D. P. Shepard (AEC) W. Erickson (AEC)	2-12-51	2-13-51	X		
S. F. Schuro to: General Electric Company Cleveland, Ohio	Attend drafting standards committee meeting	- -	2-26-51	3-4-51		X	
T. H Edwards to: General Engineering Lab. Schenectady, New York	Discussion of P-10-X equipment (electrical installation phases)	C. D. Carroll	2-26-51	2-27-51	X		
W. R. Felts to: General Engineering Lab. Schenectady, New York	Discussion of P-10-X equipment	C. D. Carroll	2-26-51	2-27-51	X		
H. R. Hughes to: Chrysler Corporation Detroit, Michigan	Procurement of air raid sirens	J. C. Hammelef	2-19-51	2-27-51		X	
H. R. Hughes to: Delaney Equipment Co. Detroit, Michigan	Procurement of air raid sirens	R. J. Delaney	2-19-51	2-27-51		X	
H. R. Hughes to: Bernstein Brothers Pueblo, Colorado	Procurement of air raid sirens	H. H. Bernstein	2-19-61	2-27-51		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
G. L. Smith to: Willamette Iron & Steel Portland, Oregon	Inspect vendor fabricated items for projects C-369 and C-349	- -	2-12-51	2-12-51		X	
G. L. Smith to: American Boiler Works Everett, Washington	Inspect vendor fabricated items for projects C-369 and C-349	- -	2-13-51	2-13-51		X	
MANUFACTURING MANAGEMENT							
I. Visitors to this Works							
S. E. Hazlett Washington State College Pullman, Washington	Education program	C. N. Gross R. E. Curtis	2-8-51	2-10-51	X		300 303,3706
S. T. Stephenson Washington State College Pullman, Washington	Education program	C. N. Gross R. E Curtis	2-8-51	2-10-51	X		300 303,3706
M. H Smith E. I. du Pont de Nemours & Co. Wilmington, Delaware	SF Accountability data and methods information	C. N Gross	2-19-51	2-23-51	X		All Areas-All Bldgs. including 234, 235
"P" DIVISION							
I. Visits to other Installations							
E. W. O'Rorke to: Mallinckrodt Chem. Works St. Louis, Missouri	Inspect plant facilities and attend metal quality meeting	W. Keller	2-26-51	2-28-51	X		
R. O. Mehann to: University of California to: University of Cal. Los Angeles	Procurement of technical personnel	- -	2-26-51	2-28-51		X	
"S" DIVISION							

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass	Areas
W. E. Davis to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Witness and assist in machining operations	I. B. Venable	2-18-51	2-23-51	X		
A. S. Withrow to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Witness and assist in machining operations	I. B. Venable	2-16-51	2-23-51	X		
TRANSPORTATION DIVISION							
I. Visitors to this Works							
J. P. Sullivan Alco Locomotive Company Schenectady, New York	Inspect locomotive	L. A Powell H. B. Beers L. R. Richards	2-16-51	2-16-51		X	Riverland Yards
PURCHASING AND STORES DIVISION							
I. Visits to other Installations							
W. W. Koenig to: U. S. Atomic Energy Comm. Washington, D. C.	Attend meeting on ferro-columbium supply situation	W. J. Williams R. W. Cook	2-27-51	2-27-51	X		
G. Wright to: Stearns-Rogers Denver, Colorado	Procurement of material and equipment	M. S. Rosengren C. D. Clow	1-31-51	2-3-51		X	
G. Wright to: Vulcan Copper & Supply Cincinnati, Ohio	Procurement of material and equipment	R. M. Rommell	2-5-51	2-7-51		X	
G. Wright to: Struthers-Wells Corp. Warren, Pennsylvania	Procurement of material and equipment	M. Logan A. M. Micholl	2-6-51	2-9-51		X	

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Unclass	Areas
G. Wright to: Eastern Industries, Inc. Norwalk, Connecticut	Procurement of material and equipment	C. P. Carr H. A. Wilcox J. Wilkens	2-10-51	2-10-51		X	
G. Wright to: A. O. Smith Company Milwaukee, Wisconsin	Procurement of material and equipment	Mr. Dost Mr. Hinel	2-12-51	2-13-51		X	
C. P. Lawson to: Southwest Welding Co. Los Angeles, California	Expedite delivery of fabricated vessels	R. Edens A. Tietgon	2-1-51	2-5-51		X	
II. Visitors to this Works							
W. Fruehling United Truck Lines Kennewick, Washington	Deliver material on order AEC 56276	H. Dill H. H. Hart	2-5-51	2-5-51		X	200-W 234
P. McDonald United Truck Lines Kennewick, Washington	Deliver material on order HW 76630-M	H. H. Hart	2-5-51	2-5-51		X	300 303-J
D. A. Westermeyer Consolidated Freightways Kennewick, Washington	Deliver material on order 75250-M	H. H. Hart	2-5-51	2-5-51		X	100-F XXX
F. Colbert United Truck Lines Kennewick, Washington	Deliver material on order HW 77682	H. H. Hart	2-12-51	2-12-51		X	100-D 105
R. Cain United Truck Lines Kennewick, Washington	Deliver material on order HW 74231-M	H. H. Hart	2-12-51	2-12-51		X	200-E 271-B
G. Zank Lee & Estes Pasco, Washington	Deliver material on order HW 74233-M	H H. Hart	2-16-51	2-16-51		X	300 303-J

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
G. Gollahon West Coast Fast Freight Yakima, Washington	Deliver material on order HW 74212-M	H. H. Hart	2-20-51	2-20-51		X	100-H 189
J. Laird West Coast Fast Freight Yakima, Washington	Deliver material on order HW 74212-M	H. H. Hart	2-20-51	2-20-51		X	100-B 189
W. Fruehling United Truck Lines Kennewick, Washington	Deliver material on order HW 77682-M	H. H. Hart	2-21-51	2-21-51		X	100-B 105 100-F 105
L. Cook West Coast Fast Freight Yakima, Washington	Deliver material on order HW 74212-M	H. H. Hart	2-21-51	2-21-51		X	100-H 189
A. Schuman United Truck Lines Kennewick, Washington	Deliver material on order AEC 56460	H. H. Hart	2-23-51	2-23-51		X	300 303-J
L. Weiler Willamette Iron & Steel Portland, Oregon	Deliver material on order HW 70802	H. H. Hart M. H. Meuser	2-25-51	2-25-51		X	200-W TX Farm
R. Hoffman Willamette Iron & Steel Portland, Oregon	Deliver material on order HW 70802	H. H. Hart M. H Mouser	2-25-51	2-26-51		X	200-W TX Farm
R. Livermore West Coast Fast Freight Yakima, Washington	Deliver material on order HW 74212-M	H. H. Hart	2-26-51	2-26-51		X	100-H 189
J. Verschueren Liquid Carbonic Company Seattle, Washington	Deliver material on order HW 77703-M	H. H. Hart	2-27-51	2-27-51		X	100-H 105

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
H. Halverson United Truck Lines Kennewick, Washington	Deliver material on order HW 77682-M	H. H. Hart	2-26-51	2-28-51		X	100-D 105
TECHNICAL DIVISIONS							
I. Visitors to this Works							
A. U. Seybolt Knolls Atomic Power Laboratory Schenectady, New York	Technical consultation on metallurgical problems and P-10	D. W. Pearce W. D. Woods R. Ward J. C. L. Chatten W. M. Harty H. L. Sterling	2-5-51	2-7-51	X		300 3706, 321 100-B 108 200-W 234 101 235
C. A. Hanson Knolls Atomic Power Laboratory Schenectady, New York	Instrumentation consul- And General Liaison	G. H. Syrovy H. E. Grantz W. M. Mathis D. W. Pearce	2-14-51	2-17-51	X		100-H 105 300 3706 100-F 105 700
H. W. Alter Knolls Atomic Power Laboratory Schenectady, New York	Discuss research developments in separations chemistry	D. W. Pearce R. H. Beaton O. F. Hill R. B. Richards	2-14-51	2-16-51	X		300 3706, 321 100-H 105 Redox
E. L. Zebroski Knolls Atomic Power Laboratory Schenectady, New York	Discussions on separations chemistry and chemical processing work KAPL will	D. W. Pearce R. H. Beaton R. B. Richards	2-19-51	2-23-51	X		200-W 234, 235 221-U 200-W Const 277-S
B. M. Fry Technical Information Service Washington, D. C.	Inspect Classified Files and Plant Technical Library facilities	G. Stevenson B. B. Lane C. G. Craig M. G. Freidank	2-26-51	2-26-51	X		700-703
R. A. Hanson International Business Machines Richland, Washington	Service the Card Programmed Electronic Calculator	P. M. Thompson	2-5-51, 6, 13, 16, 19, 26 and 28			X	101

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
R. B. Fenninger E. I. du Pont de Nemours & Co. Wilmington, Delaware	Consultation on laboratory design and equipment	F. W Albaugh	2-5-51	2-7-51	X		300 3706 200-W 234
A. J. Williams Leeds & Northrup Company Philadelphia, Pennsylvania	Consult on use and performance of their Company's spectrometer and analytical techniques for such	F. W. Albaugh R. J. Brouns J. A. Parodi	2-26-51	2-28-51	X		300- 3706 100-B 108
R. C. Machler Leeds & Northrup Company Philadelphia, Pennsylvania	Consult on use and performance of their Company's spectrometer and analytical techniques for such	F. W. Albaugh R. J. Brouns J. A. Parodi	2-26-51	2-28-51	X		300 3706 100-B 105
C. D. Carroll General Engineering Laboratory Schenectady, New York	P-10 consultation	H. F. Zuhr	2-1-51	2-2-51	X		100-B 105, 108 300 3706 200-W 234 235
R. H. Koehler General Engineering Laboratory Schenectady, New York	P-10 consultation	H. F. Zuhr	2-1-51	2-2-51	X		100-B 105, 108 300 3706 200-W 234 235
H. W. Bousman General Engineering Laboratory Schenectady, New York	P-10 consultation	H F. Zuhr	2-1-51	2-2-51	X		100-B 105, 108 300 3706 200-W 234 235
R. L Cumerow Knolls Atomic Power Laboratory Schenectady, New York	Discussion on thermo-conductivity experiment	P. H. Reinker	2-2-51	2-5-51	X		100-B 105 300 3706
I O. Winsch Argonne National Laboratory Chicago, Illinois	P-10 consultation process problems	W. M. Harty E. A. Eschbach	2-5-51	2-9-51	X	300 3706 108 200-W 100-F 108 221-T	100-B 105

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
L. H. Duff Knolls Atomic Power Laboratory Schenectady, New York	Install equipment on M-760 Project and P-10 consultation	W. M. Harty H. F Zuhr	2-5-51	2-17-51	X		200-W 234 235 100-B 108
D. H. Marquis General Engineering Laboratory Schenectady, New York	P-10 consultation	H. F. Zuhr	2-6-51	2-10-51	X		100-B 108 300- 3706
J. E. Brown, Jr. General Engineering Laboratory Schenectady, New York	P-10 consultation	H. F. Zuhr	2-6-51	2-10-51	X		100-B 108 300 3706
R. O. Bolt Nuclear Energy for the Propulsion of Aircraft Division Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss removal of irradiated apparatus	R. E. Nather	2-12-51	2-26-51	X		300 3706 100-H 105
J G. Carroll Nuclear Energy for the Propulsion of Aircraft Division Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss removal of irradiated apparatus	R. E. Nather	2-12-51	2-26-51	X		300 3706 100-H 105
L J. Dantonio Nuclear Energy for the Propulsion of Aircraft Division Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss removal of irradiated apparatus	R. E. Nather	2-12-51	2-26-51	X		300 3706 100-H 105
H. Hurwitz, Jr. Knolls Atomic Power Laboratory Schenectady, New York	KAPL assistance to Hanford Program	P. F. Gast W. J. Ozeroff	2-26-51	3-3-51	X		300 3706 101 100-H 105 100-B 105 108

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
J. Moyer Knolls Atomic Power Laboratory Schenectady, New York	P-10 consultation in connection with spectroscopic method of product and analysis	W. M. Harty A. R. Matheson	2-26-51	2-28-51	X		300 3706 100-B 108
J A. Ayres Knolls Atomic Power Laboratory Schenectady, New York	Confer on separations chemistry problems	G. E. McCullough	2-28-51	3-2-51	X		300 3706 101 100-B 105 100-D 105 100-H 105
R. McCrosky E. I. du Pont de Nemours & Co. Wilmington, Delaware	Follow canning of special pieces	E. A. Smith	2-1-51	2-2-51	X		300 3706
F. A. Damewood E. I. du Pont de Nemours & Co. Wilmington, Delaware	Follow canning of special pieces	E. A. Smith	2-1-51	2-2-51	X		300 3706
K. W. Millot E I. du P nt De Nemours & Co. Wilmington, Delaware	Follow canning of special pieces	E.A. Smith	2-1-51	2-2-51	X		300 3706
S. McLain Argonne National Laboratory Chicago, Illinois	Discuss tanning procedures and confer regarding canning of du Pont slugs	W. K. Woods R. Ward	2-1-51	2-2-51	X		300 3706
C. w. J. Wende E. I. du Pont de Nemours & Co. Wilmington, Delaware	Consultation on shielding problems	P. F. Gast	2-18-51	2-21-51	X		300 3706
H. Apkarian General Engineering Laboratory Schenectady, New York	Long range bearing program	V. R. Cooper J. T. Stringer	2-1-51	2-2-51	X		300 3706, 321
F. Foote Argonne National Laboratory Chicago, Illinois	Confer regarding canning of du Pont slugs	W. K. Woods R. Ward	2-1-51	2-2-51	X		300 3706

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
L. A. Matheson Dow Chemical Corporation	234-5 discussions	R. H. Beaton	2-6-51	2-10-51	X		200-W 234 235
J. J. Grebe Dow Chemical Corporation	234-5 discussions	R. H. Beaton	2-6-51	2-10-51	X		200-W 234 235
W. H. Beamer Dow Chemical Corporation	234-5 discussions	R. H. Beaton	2-6-51	2-10-51	X		200-W 234 235
F. H. Langell Dow Chemical Corporation	234-5 discussions	R. H. Beaton	2-6-51	2-10-51	X		200-W 234 235
L. J. Richards Dow Chemical Corporation	234-5 discussions	R. H. Beaton	2-6-51	2-10-51	X		200-W 234 235
N. Wright Dow Chemical Corporation	234-5 discussions	R. H. Beaton	2-6-51	2-10-51	X		200-W 234 235
W. T. Gillespie Dow Chemical Corporation	234-5 discussions	R. H. Beaton	2-6-51	2-10-51	X		200-W 234 235
L. R. Drake Dow Chemical Corporation	234-5 discussions	R. H. Beaton	2-6-51	2-10-51	X		200-W 234 235
T. N. Pinney Austin Company	234-5 discussions	R. H. Beaton	2-6-51	2-10-51	X		200-W 234 235

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
D. W. Parsons Atomic Energy Commission Washington, D. C.	234-5 discussions	R. H. Beaton	2-6-51	2-10-51	X	200-W	234 235
A. Kirby Mallinckrodt Chemical Works St. Louis, Missouri	TBP Process for ore refining	R. H. Beaton	2-12-51	2-13-51	X	300	3706, 321
A. Ruehle Mallinckrodt Chemical Works St. Louis, Missouri	TBP Process for ore refining	R. H. Beaton	2-12-51	2-13-51	X	300	3706, 321
W. Weinrich Catalytic Construction Company St Louis, Missouri	TBP Process for ore refining	R. H. Beaton	2-12-51	2-13-51	X	300	3706, 321
J Delaplaine Catalytic Construction Company St. Louis, Missouri	TBP Process for ore	R. H. Beaton	2-12-51	2-13-51	X	300	3706, 321
T Runion Oak Ridge National Laboratory Oak Ridge, Tennessee	TBP Process for ore refining	R. H. Beaton	2-12-51	2-13-51	X	300	3706, 321
S. Brown Atomic Energy Commission New York, New York	TBP Process for ore refining	R. H. Beaton	2-12-51	2-13-51	X	300	3706, 321
N. Sievering Atomic Energy Commission New York, New York	TBP Process for ore refining	R. H. Beaton	2-12-51	2-13-51	X	300	3706, 321
F. B. Quackenbos Atomic Energy Commission Washington, D. C.	TBP Process for ore refining	R. H. Beaton	2-12-51	2-13-51	X	300	3706, 321

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
C V. Ellison Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss pulse column program and purex process	R. B. Richards	2-19-51	2-21-51	X		300 3706, 321 200-W 221-U 231
A. C. Jeanous Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss pulse column program	R. B. Richards	2-19-51	2-21-51	X		300 3706, 321 200-W 221-U
R. B. Lindauer Oak Ridge National Laboratory Oak Ridge, Tennessee	Discuss pulse column program	R B. Richards	2-19-51	2-21-51	X		300 3706, 321 200-W 221-U
II. Visits to other Installations							
W. K. Alexander to: Brookhaven Nat'l Lab. Upton, L.I., New York	Inspect Third Safety System in the pilo facility	R. Powell L. Borst	2-21-51	2-21-51	X		
W. K. Alexander to: Knolls Atomic Power Lab Schenectady, New York	Discuss boron steel	A. U. Seybolt	2-23-51	2-23-51	X		
J. H. Bach to: Knolls Atomic Power Lab. Schenectady, New York	Metallurgical consultation on double crystal X-ray Spectrometer	J. P. Howe	2-12-51	2-16-51	X		
E. A. Eschbach to: General Engineering Lab. Schenectady, New York	P-10 consultation	D. H. Marquis	2-12-51	2-17-51	X		
E. A. Eschbach to: Knolls Atomic Power Lab. Schenectady, New York	P-10 consultation	J. Marsden	2-12-51	2-17-51	X		
J O. Erkman to: Knolls Atomic Power Lab. Schenectady, New York	Hanford experimental program	J. P. Howe	2-15-51	2-16-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Restricted Data Areas
W. M Harty to: General Engineering Lab. Schenectady, New York	P-10 consultation	H. W. Bousman	2-12-51	2-17-51	X		
W. M Harty to: Knolls Atomic Power Lab. Schenectady, New York	P-10 consultation	C. Mannal	2-12-51	2-17-51	X		
W. M. Harty to: Los Alamos Scientific Lab. Los Alamos, New Mexico	P-10 consultation	E. S. Robinson	2-18-51	2-22-51	X		
S. S. Jones to: Knolls Atomic Power Lab. Schenectady, New York	Inspect heater facility	E. L Brundige	2-26-51	3-9-51	X		
S. S. Jones to: General Engineering Lab. Schenectady, New York	Inspect heater facility	C. D. Carroll	2-26-51	3-9-51	X		
W. T. Kattner to: Mallinckrodt Chem. Works St. Louis, Missouri	Attend meeting on quality and specifications of metal and inspect plant and discuss operating methods	W. H. Keller	2-27-51	3-1-51	X		
J. B. Lambert to: Knolls Atomic Power Lab. Schenectady, New York	Hanford experimental program	J. P. Howe	2-14-51	2-19-51	X		
J. B. Lambert to: Brookhaven Nat'l Lab. Upton, L.I., New York	Discussion of experimental equipment	P. Coleman J. Floyd	2-19-51	2-19-51	X		
G. E. McCullough to: Brookhaven Nat'l Lab. Upton, L.I., New York	Consultation on graphite	D. Gurinsky	2-12-51	2-13-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
G. E. McCullough to: Knolls Atomic Power Lab. Schenectady, New York	Consultation on material testing program	J. P. Howe	2-14-51	2-16-51	X		
A. R. Matheson to: General Eng. Laboratory Schenectady, New York	P-10 consultation	D. H. Marquis	2-12-51	2-17-51	X		
A. R. Matheson to: Knolls Atomic Power Lab. Schenectady, New York	P-10 consultation	J. Marsden	2-12-51	2-17-51	X		
E. B Montgomery to: Mallinckrodt Chem. Works St. Louis, Missouri	Attend meeting on quality and specifications of metal and inspect plant and discuss operating methods	W. H. Keller	2-26-51	3-1-51	X		
P. H. Reinker to: Brookhaven Nat'l Lab. Upton, L.I., New York	Consultation on graphite	D. Gurinsky	2-12-51	2-13-51	X		
P. H. Reinker to: Oak Ridge National Lab. Oak Ridge, Tennessee	NEPA ceramic conference	D. D. Cowan	2-14-51	2-15-51	X		
W. L. Schallial to: General Eng. Laboratory Schenectady, New York	P-10 consultation	H. W. Bousman	2-12-51	2-17-51	X		
W. L. Schallial to: Knolls Atomic Power Lab. Schenectady, New York	P-10 consultation	C. Mannal	2-12-51	2-17-51	X		
W. L. Schallial to: Los Alamos Scientific Lab. Los Alamos, New Mexico	P-10 consultation	E. S. Robinson	2-18-51	2-22-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class	Restricted Data Unclass	Areas
D. F. Snoeberger to: Knolls Atomic Power Lab. Schenectady, New York	Hanford experimental program	J. P. Howe	2-14-51	2-19-51	X		
D. F. Snoeberger to: Brookhaven Nat'l Lab. Upton L.I., New York	Discussion of experimental equipment	P. Colman J. Floyd	2-19-51	2-19-51	X		
G. J. Alkire to: Radiation Laboratory Berkeley, California	Consultation on alpha energy analyzer and equipment	A. Ghiorso	2-14-51	2-16-51	X		
W. K. Woods to: General Engineering Lab. Schenectady, New York	P-10 consultation	H. W. Bousman	2-12-51	2-17-51	X		
W. K. Woods to: Knolls Atomic Power Lab. Schenectady, New York	P-10 consultation	C. Monnal	2-12-51	2-17-51	X		
W. K. Woods to: Los Alamos Scientific Lab. Los Alamos, New Mexico	P-10 consultation	E. S. Robinson	2-18-51	2-22-51	X		
H. F. Zuhr to: General Engineering Lab Schenectady, New York	P-10 consultation	D. H. Marquis	2-12-51	2-17-51	X		
H. F. Zuhr to: Knolls Atomic Power Lab Schenectady, New York	P-10 consultation	J. Marsdon	2-12-51	2-17-51	X		
H F. Zuhr to: Los Alamos Scientific Lab. Los Alamos New Mexico	P-10 consultation	E. S. Robinson	2-18-51	2-20-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
R. E. Burns to: Carbide & Carbon Corp. Oak Ridge National Laboratory Oak Ridge, Tennessee	Waste processing committee meeting Waste treatment X-10 234-5 Process K-25	W. K. Eister F. L. Steahly F. W. Hurd	2-5-51	2-8-51	X		
H. H. Hopkins to: Argonne National Lab. Chicago Illinois	Redox problems	S. Lawroski	2-19-51	2-20-51	X		
H. H. Hopkins to: University of Chicago Chicago, Illinois	Attend symposium on equilibrium and rate properties of complex ions	- -	2-21-51	2-23-51		X	
H. H. Hopkins to: Gen. American Transportation Co. Chicago, Illinois	Nickel plating process	R. London	2-19-51	2-19-51		X	
C. A. Bennett to: Mallinckrodt Chem. Works St. Louis, Missouri	AEC Metal quality meeting	W. H. Koller	2-26-51	3-1-51	X		
A. H. Bushey to: Knolls Atomic Power Lab. Schenectady, New York	Attend meeting to discuss KAPL P-10 assistant to Hanford Program	C. Mannal	2-13-51	2-18-51	X		
L. F. Kendall to: Los Alamos Scientific Lab. Los Alamos, New Mexico	Consultation spectro-chemical analysis	C. F. Metz	2-16-51	2-21-51	X		
W. H. Reas to: Argonne National Lab. Chicago, Illinois	Conference on Redox problems	S. Lawroski	2-19-51	2-20-51	X		
E. W. Robel to: Mallinckrodt Chem. Works St. Louis Missouri	Conference on analytical methods and inspection of facilities	A. Q. Butler	2-26-51	3-2-51	X		

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Name - Organization	Purpose of Visit	Person Contacted	Arrival	Departure	Restricted Data Class.	Restricted Data Unclass	Areas
C. G. Stevenson to: Oak Ridge National Lab. Carbide and Carbon Chem. Corp. Oak Ridge, Tennessee	Orientation visits to X-12, Y-12 and K-25 in connection with Technical Information Panel meeting	W. L. Harwell	2-4-51	2-7-51	X		
C. G. Stevenson to: Fairchild Engine & Airplane Corp. NEPA Division Oak Ridge, Tennessee	Orientation visit in connection with Technical Information Panel meeting	D. D. Cowen	2-4-51	2-7-51	X		
C. G. Stevenson to: Atomic Energy Commission Oak Ridge Tennessee	Attend meeting of Technical Information Panel	I. A. Warheit	2-4-51	2-7-51	X		
C. G. Stevenson to: Knolls Atomic Power Lab. Schenectady, New York	Mutual problems of Classified Files and inventory and Library	Miss Elsie Noecy	2-12-51	2-14-51	X		
L. G. Waters to: Mallinckrodt Chem. Works St. Louis Missouri	AEC metal quality meeting	W. H. Keller	2-26-51	3-1-51	X		
B. Weidenbaum to: Los Alamos Scientific Lab. Los Alamos, New Mexico	234-5 consultations	M. F. Foy	3-4-51	3-10-51	X		
F. B. Quinlan to: Leland S. Rosener Co. San Francisco, California	Information on design of radio-metallurgy Bldg	L. S. Rosener, Jr. L. S. Rosener, Sr.	2-4-51	2-6-51		X	

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PURCHASING AND STORES DIVISIONS

SUMMARY

FEBRUARY 1951

Personnel of the Purchasing and Stores Divisions showed a net increase of fifteen as indicated by the tabulation below:

	Total Personnel as of 1/31/51	Total Personnel as of 2/28/51	Net Change
Exempt	71	72	+1
Non-Exempt	281	295	+14
TOTALS	352	367	+15

The Assistant Manager of the Purchasing and Stores Divisions transferred to a position with the Air Conditioning Department at Bloomfield as of February 28, 1951. He will be succeeded by the Transportation Division Superintendent whose transfer becomes effective March 1, 1951.

Although there was a marked decrease in the number of purchase requisitions received in February; i.e., 2,848 compared to 4,357 in January, the total dollar value was roughly only $400,000 less, while the dollar value of construction materials requisitions, representing many items of an extremely critical nature mounted some $200,000 over the January figure. Value of all orders placed this month is $2,397,876.82 compared to the January figure of $2,772,690.22.

Additional equipment for Projects C-187-D, C-187-E, C-361 and C-362 reported as being approximately 90% on order last month is proceeding as developed by final summation of requirements.

Fabrication of equipment for Projects C-361 and C-362 is progressing but with numerous difficulties. Steel supply, corrosion requirements and fabrication tolerances continue to be major problems from the standpoint of acceptance and delivery.

Difficulties on the part of steel mills to meet delivery promises continue. Shipments of stainless steel from the Pittsburgh warehouse total 282,823 pounds. Fifteen additional bulk stainless steel orders were placed during the month.

Corrosion test failures, particularly on Type 304 ELC stainless steel plate, reached an alarming figure resulting in much switching of material from one piece of equipment to another.

Dimensional tolerance requirements were reviewed as a result of an experiment conducted in Building 277-S. It is indicated that some relaxation in specifications may be possible which may permit the acceptance of essentially all vessels.

Preliminary design, construction and procurement schedule for a new production facility, C-431-B, was reviewed. With increasing procurement difficulties many problems are anticipated. The Purchasing Division is preparing a list of the most critical items to assist the Engineering and Construction Divisions in

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PURCHASING AND STORES DIVISIONS

SUMMARY

preparing, in logical sequence, the requisitions for materials.

Negotiations were completed with essential material vendors with the view to increase quantities now on contract to meet additional requirements.

2,533 purchase requisitions were processed through Stores screening with the result that 1,536 items were furnished from plant sources.

Maintenance materials and supplies disbursed from active inventories during the month were valued at $211,517.58.

Incoming shipments received during the month totaled 4,507.

Materials valued at $208,260.82 were disbursed from the 10.20 Account, Construction Materials Held for Possible Future Use, to construction forces.

Materials valued at $23,915.22 were withdrawn for Operations use and materials valued at $96,345.43 were declared excess.

Materials and equipment valued at $296,423.69 were withdrawn from Account 10.10 for use on the project.

Evacuation of certain North Richland Warehouses was completed during the month.

Inventory of materials and supplies in the custody of various divisions other than Purchasing & Stores is progressing.

Appropriation request 3-R-A-R, Central Stores Warehousing, was approved by the Appropriation & Budget Committee on February 28, 1951. Project Proposal C-490-R-2 was transmitted to the Commission by the Committee.

The volume of work in the Traffic Section continued at a high level.

Because of increased requirements of bulk ferric sulphate it was necessary to obtain from the carriers additional covered hopper cars for this service.

Extended negotiations resulted in a lower rate on lime in bulk from Evans, Washington. This reduction will effect a savings of $24 per car.

Suppliers of pure methane gas have been instructed to use the commodity description, "Compressed Hydrocarbon Gas, NOI", on future shipments. This lowers the classification rating from first to third class and currently, on shipments from Borger, Texas and Joliet, Illinois, there will be a saving of approximately $1,500 annually.

Rate reductions currently and previously obtained from the carriers resulted in a savings of $22,380.47 on freight charges during the month. Total savings achieved in this connection from September 1, 1946 to date is $1,471,596.46.

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PURCHASING AND STORES DIVISIONS

STAFF SECTION

FEBRUARY 1951

GENERAL

Prepared and submitted to the Budget Section, General Accounting Division, the fourth quarter FY 1951 budget estimates for inventories controlled by the Stores Division. It was estimated that total inventories would decrease from $21,605,000 actual as of December 31, 1950 to $16,307,000 by June 30, 1951. This reduction of $5,298,000 is reflected primarily in the Excess and Held for Possible Future Use Accounts.

Prepared and submitted Budget for FY 1953 and Revision of Budget for FY 1952, Property in Service - Equipment. An amount of $10,000 for pallets was deleted from this budget by the General Accounting Division. However, provision for the purchase of this equipment will be made in the budget of operating costs now being prepared.

Submitted our estimates of the number of railroad cars to be handled by the Manufacturing Divisions for the Stores Division during FY 1952 and FY 1953.

Construction Budget for FY 1953 and Revision of Budget for FY 1952 was submitted to the General Accounting Division. This budget was prepared by the Engineering and Construction Divisions and covers the Central Stores Warehouse project which is scheduled for completion in FY 1953 at a cost of $1,200,000.

The physical inventory, audit and reconciliation of captions 903-1, 9, 15, 16; 904-U and 906 have been completed.

Material inventoried but not previously carried in sub-captions of the 904 Account, Spare Parts, is under review by Stores Supervision and other divisions concerned to determine dispostion. This material has a total value of approximately $27,532.93.

New catalogues were prepared for Captions 903-17, 20, 21, 25 and 26. A revision of the Printed Forms Section in the catalogue for Caption 903-27, Stationery, was made.

Procedure for the Procurement and Disposition of Platinum has been revised.

Plans have been completed to set up Caption 903-11, Automotive Parts, under the National Automotive Parts Association System. This system will facilitate locating and recording material stored in various warehouses. The system will be installed at time of inventory which is scheduled to begin in May 1951.

Procedure for Shipping of Surplus, Salvage and Scrap Material has been completed and is being reviewed for final approval.

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PURCHASING AND STORES DIVISIONS

STAFF SECTION

PERSONNEL

	As of 1-31-51			As of 2-28-51			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Cost, Budget Control	1	-	1	1	-	1	0	0	0
Methods - Procedures Inventory & Audit	2	12	14	2	13	15	0	+1	+1
TOTALS	3	12	15	3	13	16	0	+1	+1

SAFETY AND SECURITY

Meetings held - 1
Number Attending - 11

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PURCHASING AND STORES DIVISIONS
PURCHASING DIVISION
FEBRUARY, 1951

The number of new purchase requisitions in the Division dropped during the month of February. 2848 purchase requisitions were received and assigned as compared with 4357 in January. Orders placed totaled 2277 as compared with 2870 the previous month. Requisitions on hand at the end of the month totaled 1096 compared to 1428 on January 31.

The dollar value of orders placed during February amount to $2,397,876.82 of which $1,581,607.15 was for new construction materials. Of the 563 construction requisitions received during the month 31 were for Project C-187-D, 184 for Project C-361, 22 for Project C-187-E and 8 for Project C-431-B. The balance of the construction requisitions were for miscellaneous D&C projects and for MS Stores material.

The purchase of additional items of equipment for Projects C-187-D, C-187-E, C-361 and C-362 proceed as they were developed by final recapping of requirements. Alterations to existing orders continued to account for a significant portion of the Division's work load. Final negotiations with vendors and clean-up of Project C-187-D orders proceeded as rapidly as possible. This part of the work load will continue over many future months.

Fabrication of equipment for Projects C-361 and C-362 progressed slowly. Material supply, corrosion requirements and dimensional tolerances remained a major problem from an inspection and delivery standpoint. Delivery delays on stainless steel orders continued to be a major expediting problem.

Corrosion test failures, particularly on Type 304 ELC stainless steel plate reached an alarming figure. A procedure has been developed for handling the disposition of steel which fails corrosion tests; however, it requires much switching of material from one piece of equipment to another, sometimes necessitating the shipping of material from one fabricator to another. This results in material being held from fabrication for considerable periods of time.

A review of the dimensional tolerances which the fabricators are asked to meet resulted in conducting an experiment in the 277S Building on February 28 to determine the amount of deviation from drawing tolerances which could be permitted and still permit mock up of the equipment. Results of this experiment indicated that enough relaxation of dimensional tolerance is possible to allow acceptance of essentially all vessels. This relaxation will materially improve delivery dates on all critical equipment.

A preliminary Design, Construction and Procurement schedule for Project C-431-B was reviewed. Many procurement problems are anticipated unless design is firmed and purchase requisitions are received immediately. The Purchasing Division is preparing a list of the most critical items to assist the E&C Divisions to prepare in logical sequence the issuance of design and the requisition of materials.

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PURCHASING AND STORES DIVISIONS
PURCHASING DIVISION

All unplaced requisitions for P-10-K were recalled on February 6, 1951. No answer as to final disposition had been received by month end.

New regulations and controls continued to complicate the procurement of materials. All indications point toward a controlled Materials Plan as the only practical solution to the problem of maintaining proper distribution of critical materials.

Negotiations were completed with Essential Material vendors toward increasing the quantities on contract to meet new increased requirements. These include Sodium Bismuthate, Soda Ash and Nitric Acid. Orders coering requirements of Aluminum and Magnesium for the calendar year 1951 were placed to protect our supply in the face of market conditions and NPA Regulations.

New personnel and budget forecasts for the fiscal years 1952 and 1953 were made on the basis of an extended construction program resulting from approval of a new production facility. Requisitions were issued to Employment for 10 additional inspectors, 3 additional buyers, 5 additional expediters and 11 additional clerical employees.

The purchase of four Air-Raid Sirens was accomplished with the cooperation of the Civil Defense Committee. These sirens were delivered to the project and will be installed at strategic locations.

PERSONNEL

	As of 1-31-51			As of 2-28-51			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Administrative	1	1	2	1	1	2			
Purchasing	14	23	37	14	24	38		+1	+1
Expediting	9	11	20	10	11	21	+1		+1
Inspection	22	5*	27*	24	5*	29*	+2		+2
Clerical	1	21	22	1	24	25		+3	+3
Priorities	1	2	3	1	4	5		+2	+2
TOTALS	48	63	111*	51	69	120*	+3	+6	+9

* The above figures do not include 6 rotational trainees assigned to Inspection.

SAFETY AND SECURITY

Safety and Security Meetings Schedule	3
Number of employees attending	55
Minor Injuries	0

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PURCHASING AND STORES DIVISION
PURCHASING DIVISION

STATISTICS	G	D	TOTAL
Requisitions on Hand 2-1-51 (includes 190 assigned to Gov't.)	1116	312	1428
Requisitions assigned during February	2285	563	2848
Requisitions placed during February	2569	611	3180
Requisitions on Hand 2-28-51 (includes 111 assigned to Gov't.)	832	264	1096

		NUMBER	VALUE	
HW Orders Placed		1576	$1,081,927.41	
HW Alterations Placed		147	265,657.74	(Credit)
	Total	1723	$ 816,269.67	
HWC Orders Placed		450	$1,670,893.83	
HWC Alterations Placed		104	89,286.68	(Credit)
	Total	554	$1,581,607.15	
AEC Orders Placed		143	$ 363,524.81	
DC Orders Placed		41	46,287.74	

	OR	ORC	TOTAL
Gov't Transfers	4	1	5

	NUMBER
Return Orders Issued	98

Dollar Value of Orders to date to which Priority Rating was applied:

	4th Quarter 1950	1st Quarter 1951	2nd Quarter 1951	3rd Quarter 1951
DO-40	$ 1,911,199.66	$ 1,570,509.08	$ 545,631.80	$ 155,385.05
DO-41*	22,546,844.19	6,541,979.08		

* Includes Contract Section, Design & Construction Divisions

OPEN ORDERS

HW Orders	1670
HWC Orders	978
Government	78

Number of New Orders requiring inspection during month	49
Number of Orders requiring inspection completed during month	76
Number of Orders outstanding requiring inspection at month's end	497*
Number of HW Orders expedited (routine)	830
Number of HW Orders expedited (Special Requests)	405
Number of HWC Orders expedited	890

* Includes 91 Sub-vendor orders.

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PURCHASING AND STORES DIVISIONS
STORES DIVISION
FEBRUARY, 1951

GENERAL

Maintenance materials and supplies disbursed from active inventories during the month were valued at $211,516.58. Receipts of incoming shipments remained relatively high for the month reflecting a total of 4,507 receiving reports issued.

2533 purchase requisitions were processed through Stores' screening and 1536 items were furnished from Plant sources. 158 items of stainless steel not immediately available on the open market were furnished to fabricators from Plant inventories.

Material and equipment valued at $208,260.82 involving 19 captions in the 10.20 account (Construction Held Material) was disbursed to construction forces during the month. In addition to the foregoing, materials valued at $23,915.22 were withdrawn for Operations' use and materials valued at $96,345.43 were declared excess.

Materials and equipment valued at $296,423.69 were withdrawn from Account 10.10 (Excess) and returned for use on the Project. Of this amount, Construction forces' withdrawals were valued at $281,538.42.

Evacuation of certain North Richland warehouses as requested by the Commission January 22, 1951 was completed during the month and action to sell those warehouses as scrap was progressing satisfactorily at month's end. It is anticipated that the removal of the scrap warehouses by the successful bidders will proceed as scheduled.

Progress was made by the various Operating Divisions in the inventory of materials and supplies in their custody not recorded in a Stores' inventory account. An inspection of the areas was made by a representative of the Stores Division to assist the other Divisions retaining certain materials, with problems encountered in complying with the Commission's request and to determine the effectiveness of the over-all inventory program.

Appropriation Request No. 3-R-A-R, Central Stores Warehouse, was approved by the A & B Committee February 28, 1951 and Project Proposal No. C-490-R-2 requesting approval was transmitted to the Commission by the Committee.

PERSONNEL

	As of 1-31-51			As of 2-28-51			Net Change		
	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total	Ex.	Non-Ex.	Total
Administrative	4		4	4		4			
Construction Mat'l. Sect.	3	35	38	2	34	36	-1	-1	-2
Operations Mat'l. Section	4	104	108	4	112	116		+8	+8
Surplus, Salvage & Scrap Materials Section	4	56	60	4	51	55		-5	-5
TOTALS	15	195	210	14	197	211	-1	+2	+1

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PURCHASING AND STORES DIVISIONS
STORES DIVISION

SAFETY AND SECURITY

Safety and Security Meetings Scheduled	10
Number of Employees Attending	191
Minor Injuries	6

STATISTICS

Construction Materials Section

Items in Stores Stock	44,151
Items Added to Stock	479
Items Completely Liquidated From Stock	629
Store Orders Posted (Items)	3,388
Number of Requisitions Screened - A.J.	586
Number of Items Screened - G.E.	4,640
Number of Items Furnished from Stock	660
Value of Disbursements	$232,176.04*
Inventory Valuation at Month End - Materials	7,508,971.55
Value of Materials Shipped	4,424.32
Value of Materials Received	2,617.45

*Includes $208,260.82 disbursed to Construction & CPFF Subcontractors.

Operations Materials Section

Number of Items Added to Stores Stock	402
Number of Items Deleted from Stores Stock	26
Items in Stores Stock at Month End	46,218
Store Orders Posted	19,013
Number of Requisitions Screened This Month - G.E.	1,947
Number of Items Furnished from Plant Sources This Month	876
Inventory Valuation at Month End (903-All Captions, 906 & 912)	$1,219,740.81
Inventory Valuation at Month End (Spare Parts)	1,645,519.08
Inventory Valuation at Month End (Special Materials)	3,162,394.95
Total Value Inventory Accounts	6,027,654.84
Value of Disbursements, not including Cash Sale Items	211,516.58*
Value of Cash Sales	725.30
Value of Sales, Payroll Deduction	1,934.06
Value of Materials Declared Excess	278.67
Value of Materials Returned to Stores Stock for Credit	9,790.71

*Includes $24,309.88 disbursed to Construction and CPFF Subcontractors

Surplus, Salvage & Scrap Materials Section

Balance of Account 10.10 as of 1-31-51		$6,413,432.16
Receipts 1-31-51 to 2-28-51		
Lumber	8,613.96	
Automotive Equipment	20,756.75	
Office Furniture	48,128.38	
Material & Supplies	383,122.17	
Miscellaneous Equipment	24,591.40	
Machine Tools & Equipment	216,596.81	
Household Furniture	2,280.23	704,089.70

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PURCHASING AND STORES DIVISIONS
STORES DIVISION

STATISTICS (Continued)

Adjustments - Classes and Current Market Prices			Cr. 182.99
			7,117,338.87

Disbursements 1-31-51 to 2-28-51

On Project			
Lumber	2,954.87		
Automotive Equipment	213,596.10		
Machine Tools & Equipment	750.14		
Office Furniture	157.40		
Material and Supplies	26,416.84		
Miscellaneous Equipment	52,548.34		
		$296,423.69*	
Off Project			
Lumber	112.29 cr		
Automotive Equipment	219,069.72		
Machine Tools & Equipment	6,968.56		
Office Furniture	10,079.74		
Material and Supplies	201,140.58		
Miscellaneous Equipment	41,796.28	478,942.59	775,366.28
Balance of Account 10.10 as of 2-28-51			$6,341,972.59
Total Receipts to Date			$34,672,231.40
Total Disbursements to Date			28,330,258.81

*Includes Disbursements to Construction and CPFF Subcontractors-$281,538.42

Scrap and Salvage Disbursed		
Scrap Sales Completed	15	
Scrap Sales in Process	6	
Scrap Sales Revenue for month of February		$6,494.77
Total Scrap Sales Revenue to Date		$10,825.71

WAREHOUSING, RECEIVING, DISBURSING & SHIPPING SECTIONS

Construction Materials Section	
Store Orders Filled	4,063
Number of Items Received	479
Items Filled for Shipping	223
Operations Materials Section	
Receiving Reports Issued	4,507
Emergency Store Orders Filled	4
Shipments Processed (Containers & Materials)	279
Shipments Received	4,174
Store Orders Registered	23,144

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PURCHASING AND STORES DIVISIONS
STORES DIVISION

STATISTICS (Continued)

Surplus, Salvage & Scrap Materials Section

Store Orders Filled	496
Truckloads of Material Shipped	22
Carloads of Material Shipped	24

D&C CONSTRUCTION STORES

Account 10.16 as of February 28, 1951

Account No.		Balance 1-31-51	Purchases	Disbursements	Balance 2-28-51
10.16-101	Cement	39.26	25.84		65.10
10.16-103	Plaster, etc.	21.03		2.43	18.60
10.16-104	Lumber	3,387.99	10,828.11	4,494.55	9,721.55
10.16-105	Reinforced Steel	797.15	6,119.85	1,033.36	5,883.64
10.16-106	Misc. Stores	13,484.77	6,639.31	3,885.32	16,238.76
10.16-107	Plumbing	41,794.09	5,872.71	1,147.77	46,519.03
10.16-108	Electrical	22,287.82	8,825.07	3,828.45	27,284.44
10.16-109	Vitrified Clay Pipe		35.49		35.49
10.16-110	Paint, Glass	1,368.79	741.02	128.72	1,981.09
10.16-111	Welding Rod	1,129.39	570.64	668.70	1,031.33
10.16-112	Structural Steel	1,090.71	22,857.77	657.78	23,290.70
10.16-113	Concrete & Masonry Sup.		30.90	7.32	23.58
10.16-115	Roofing Supplies	8.23	94.78	199.71	Cr. 96.70
10.16-116	Transformers		891.24	1,113.45	Cr 222.21
10.16-133	Small Tool Repair Parts	318.59	566.80	217.34	668.05
10.16-134	Clothing	1,082.05	3,831.99	3,852.08	1,061.96
10.16-118	Automotive	6,059.73	18,856.34	3,561.93	21,354.14
	Totals	$92,869.60	$86,787.86	$24,798.91	$154,858.55

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PURCHASING AND STORES DIVISIONS
TRAFFIC SECTION
FEBRUARY, 1951

GENERAL

The work load of the Traffic Section continued at a high level.

The wildcat switchmen's strike, which started on January 30, extended through February 8. Considerable difficulty was experienced in maintaining the flow of critical materials to Hanford works as well as to fabricators at various locations. However, through numerous diversions and reroutings, all deliveries were effected on time.

Due to the doubling of our requirements of bulk Ferric Sulphate for the next four months the Stauffer Chemical Company advised that they would be unable to secure sufficient covered hopper cars to handle the movement. Officials of the Milwaukee Road, Northern Pacific, Southern Pacific, and the Union Pacific were asked to supply a portion of the cars required. The Northern Pacific and the Union Pacific advised that it would be impossible to help us. The Milwaukee Road has agreed to place two covered hoppers in this service, and the Southern Pacific has promised to furnish the balance.

After extended negotiations, the rail carriers have approved a rate of 28 cents per cwt. on Lime, in bulk, minimum 60,000 pounds from Evans, Washington to Hanford and Richland to become effective on statutory notice. This reduction will effect a savings of $24 per car on shipments in bulk, minimum 60,000 pounds.

Instructions have been issued to our current suppliers of Pure Methane Gas to use the commodity description "Compressed Hydrocarbon Gas, NOI" on bills of lading covering future shipments. This will change the classification rating from First to Third Class, and will result in a reduction in rates of $2.07 per cwt. on shipments from Borger, Texas, and $3.17 per cwt. from Joliet, Illinois, and will effect an annual savings of approximately $1,500.

Arrangements have been made with the Flying Tiger Line to furnish expedited air freight service on critically needed Flanges and Fittings which will be shipped from Chicago to our fabricator of stainless steel vessels at Alhambra, California.

As a result of rate reductions obtained from the carriers, there was a total savings in freight charges for the month of February amounting to $22,380.47. This makes a total savings from September 1, 1946 to date of $1,471,596.46.

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PURCHASING AND STORES DIVISIONS
TRAFFIC SECTION
FEBRUARY, 1951

PERSONNEL

	Total Personnel as of 1-31-51	Total Personnel as of 2-28-51	Net Change
Exempt	2	2	0
Non-Exempt	7	8	+1
	9	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 February	Savings 9-1-46 thru Jan. 1950	Total Savings 9-1-46 to date
Coal	Kemmerer, Wyo.	$ 4,183.20		
Coal	Roslyn, Wn.	406.50		
Coal	Roundup, Mont.	8,938.72		
Coal	Superior, Wyo.	107.04		
Lime	Evans, Wn.	254.68		
Iron & Steel	San Francisco, Cal.	2,522.93		
Iron & Steel	Los Angeles, Cal.	1,480.05		
Phosphoric Acid	Newark, Cal.	392.08		
Phosphoric Acid	South Gate, Cal.	966.24		
Caustic Soda	Tacoma, Wn.	541.29		
Caustic Soda	Willbridge, Ore.	1,860.48		
Soda Ash	Trona, Cal.	303.00		
Railway Express	Various	359.42		
Trichlorethylene	Various	64.64		
		$22,380.47	$1,449,215.99	$1,471,596.46
2. Freight Bill Audit		2,182.07	56,620.45	58,802.52
3. Loss and Damage and Over-Charge Claims		362.09	103,330.45	103,692.54
4. Ticket Refund Claims		632.36	11,877.26	12,509.62
5. Household Goods Claims		42.83	14,420.03	14,462.86
		$25,599.82	$1,635,464.18	$1,661,064.00

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PURCHASING AND STORES DIVISIONS
TRAFFIC SECTION
FEBRUARY, 1951

-4-

STATISTICS (CONTINUED)

Work Volume Report

Reservations Made	Rail	116	
	Air	114	
	Hotel	128	
Expense Accounts Checked		160	
Household Goods&Automobiles	Movements Arranged Inbound		6
	Movements Arranged Outbound		3
	Shipments Traced		1
	Furniture Repair Orders		1
	Claims Collected - Number		1
	Claims Collected - Amount		$42.83
Ticket Refund Claims	Filed		11
	Collected - Number		35
	Collected - Amount		$632.36
Freight Claims	Filed		4
	Collected - Number		8
	Collected - Amount		$362.09
	Over and Shorts Processed		17
	Damage Reports Processed		10
Freight Bill Audit Savings			$2,162.07
Freight Shipments Traced			118
Quotations	Freight Rates		187
	Routes		307
Bills Approved	Air Freight		7
	Air Express		56
	Boat		1
	Carloading		142
	Express		153
	Rail		505
	Truck		289
Carload Shipments	Inbound - GE		564
	Others		103
	Outbound - GE		31
	Others		0

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PURCHASING AND STORES DIVISIONS
TRAFFIC SECTION
FEBRUARY, 1951

STATISTICS (CONTINUED)

Report of Carloads Received

	MILW	N.P.	U.P.	TOTAL
General Electric Company				
Ammonium Silico Fluoride			1	1
Asphalt			1	1
Bath Tubs		1		1
Liquid Chlorine	1	1		2
Coal	160	23	286	469
Filters & Mineral Wool			1	1
Lime	1	1	2	4
Nitric Acid		11	11	22
Phosphoric Acid		2	1	3
Pipe, Steel	2			2
Salt		1	1	2
Sand, Molding		1		1
Soda Ash	1	1		2
Caustic Soda	3	11	4	18
Sodium Nitrite	1			1
Ferric Sulphate	1	1	3	5
Tanks, Steel		1		1
Tubing, Steel			2	2
Wardrobe Lockers	1			1
Merchandise	3	7	2	12
Express	2		1	3
TOTAL	176	62	316	554
A. E. C.				
Lumber	5			5
Plywood	3			3
Shelving, Steel			1	1
Merchandise	1			1
TOTAL	9		1	10
Atkinson & Jones Construction Company				
Cement	13	9		22
Insulation	1			1
Muriatic Acid		1		1
Paper, Building		1		1
Pipe, Sewer, Clay	1			1
Pipe, Steel	1		2	3
Pitch, Roofing		1		1
Silica Sand		5		5
Steel Plates	1		2	3
Steel, Reinforcing	10		1	11
Steel Beams			1	1
Merchandise	6			6
TOTAL	33	17	6	56

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PURCHASING AND STORES DIVISIONS
TRAFFIC SECTION
FEBRUARY, 1951

STATISTICS (CONTINUED)

Report of Carloads Received (Continued)

	MILW	N.P.	U.P.	TOTAL
E. F. Hauserman Company				
Partitions			4	4
TOTAL			4	4
Martin Fireproofing Corporation				
Plaster	2			2
TOTAL	2			2
Richland Fuel				
Coal		2	13	15
TOTAL		2	13	15
S. S. Mullens, Incorporated				
Bleachers & Seats			1	1
Doors		1		1
Pulpboard		1		1
TOTAL		2	1	3
Haigan & Wolff, Incorporated				
Plasterboard			1	1
TOTAL			1	1
Waale Complin Company				
Merchandise		1		1
TOTAL		1		1
McPhail Engineering Company				
Poles	2			2
TOTAL	2			2
F. J. Early				
Asphalt	2			2
Cement	2			2
Pipe, Sewer, Clay	1			1
Steel, Fabricated		1		1
Steel, Reinforcing			3	3
TOTAL	5	1	3	9
L. E. Baldwin Incorporated & Associates				
Lumber		1		1
Pipe & Fittings		1	1	2
Plumbing Goods		1		1
Wallboard		2		2
TOTAL		5	1	6

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PURCHASING AND STORES DIVISIONS
TRAFFIC SECTION
FEBRUARY, 1951

STATISTICS (CONTINUED)

Report of Carloads Received (Continued)

	MILW	N.P.	U.P.	TOTAL
Moscow Electric Company				
Poles			2	2
TOTAL			2	2
Thorgaard Plumbing & Heating				
Pipe			1	1
TOTAL			1	1
Mercer Steel Company				
Merchandise		1		1
TOTAL		1		1
TOTAL - SUBCONTRACTORS	42	29	32	103
TOTAL ENTIRE PROJECT	227	94	346	667

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EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

SUMMARY - FEBRUARY, 1951

The number of applicants interviewed decreased from 2,002 in January to 1,934 in February. Of these applicants, 1,003 were individuals who applied for employment with the General Electric Company for the first time. In addition, 479 new applications were received through the mail. Open, nonexempt, nontechnical requisitions decreased from 573 at the beginning of the month to 548 at month end. Total plant roll increased from 7,950 to 8,027. Turnover rate increased from 1.48% in January to 1.73% in February. During February, 51 new requests for transfers to other type of work were received in the Employment Office, and 38 transfers were effected. During February, the Employment Office again remained open on Saturdays, with the result of 455 applicants being interviewed on those days, of which 329 were new applicants. Of these, 89 were placed in process and 50 are pending. During February advertisements were placed in newspapers in the states of Washington, Idaho, Oregon, California, and Colorado and Utah, and spot radio announcements were made over local Washington stations outlining some of our needs for personnel. Recruitment of laboratory assistants was made through contacting interested students in five nearby colleges.

During February, 1 employee retired. One hundred forty-nine visits were made to employees confined to the local hospital, and 73 salary checks were delivered to employees either confined at the hospital or at home. At the end of February, there were 728 employees registered under the Selective Service Act and 654 military reservists on our rolls. The Employee Services Group organized the plant Red Cross Drive which is to be conducted during March.

A total of 34 supervisors attended the Supervisors' 40-Hour Training Program during the week of February 12, 1951. The 80 supervisors, divided into PMS Groups 9, 10, 11 and 12, completed their conferences in February. Start-up of four additional groups, consisting of 60 supervisors, has been announced. Group 13 and 14 were started in February; Groups 15 and 16 will commence their conferences in March. The 8-Hour Non-Exempt Training Program was presented on February 2, to a group of 18 "S" Division employees. Thirty-one supervisors from the Employee and Community Relations Divisions attended a dessert meeting on February 7, at which time there was a review of 1950 accomplishments and a discussion of 1951 objectives. Three issues of SAGE were prepared and mailed during February. A total of 409 members of exempt personnel attended the three-session HCBSO conferences during February. A course in EFFECTIVE PRESENTATION is being presented by W. W. Chamberlain through the G-E School of Nuclear Engineering. During February, Orientation was given to 5 re-engaged and 193 new employees. Re-engaged employees

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indicated 100% participation in the G.E. Insurance Plan, and 81.7% of the new employees signed to participate. Thirty-nine Handbooks were returned and re-issued during the month of February. A total of 24 copies of the book, "Men and Volts" were sold to G-E employees during February.

Hill Williams, of the Tri-City HERALD, requested and was provided with the opportunity to interview three Hanford Works officials: C. M. Gross, of Manufacturing Divisions, Dick Foster, of H. I. Biology Division, and R. L. Davison. The interviews resulted in two stories on Manufacturing Divisions, one on the H. I. aquatic laboratory, and one on Davison's responsibility as Civil Defense Coordinator.

News Bureau personnel, and Mina Miller in particular, assisted Leverett Richards, reporter, and Allan Deloy, photographer, from the OREGONIAN, when they spent two days in Richland getting photographs and information for a series of feature stories on Richland.

A total of 62 news releases were written and distributed during February, Four hundred twenty-eight column inches were obtained during January in Pacific Northwest newspapers concerning Richland and Hanford Works. Since November when the News Bureau first started preparing its space report, this is the largest amount of space reported.

Local Kiwanis, Rotary, and Lions Clubs were contacted during the month concerning HOBSO, and following a presentation of the "Appreciation Session" of HOBSO, the boards of directors voted to present the program to the community as a joint venture. The principal of the Richland high school was contacted to introduce HOBSO in the school.

The G.E. Educational Assistance Program was discussed with principals and student counselors of high schools in Richland, Kennewick, Pasco and Benton City. They were furnished bulletin board posters to stimulate students' interest in the G.E. Educational Assistance Program. They were also furnished information on the employment situation and job opportunities at Hanford Works upon their request.

As a result of publicity on the motion picture, "You Can Beat the A-Bomb", over 6,000 people in Richland attended the showings.

During the month script preparation and development, color slide processing, procurement of projection equipment, art work, text and papers clearances and other assistance was rendered the Manager of Technical Personnel Office and his staff in the development of the program presented to representatives of the American Society of Engineering Education.

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A total of 210 radio announcements for procurement of employees were booked with 14 radio stations in Washington, Idaho, and Oregon, in three separate advertising campaigns for the Employment Office.

Requests for photographic services continue to increase steadily. A total of 7,698 prints were produced during February.

Employee and Community Relations Divisions annual report was produced in the form of a tabloid newspaper, the "E and C R Record," and 1951 objectives were produced in the form of an insert for the newspaper.

Civil Defense activities of Special Programs during the month included production of a bulletin, tickets for showings of "You Can Beat the A-Bomb," a poster publicizing the film, and a brochure explaining the Richland Civil Defense organization.

Recruitment classified advertisements were placed in 12 daily newspapers concerning certain classifications of employees needed, and that the Employment Office will remain open on Saturdays, resulting in 455 interviews on Saturdays during February and 700 written responses.

Recruitment classified advertisements were placed in 21 newspapers extending as far east as Denver for draftsmen and design draftsmen. To date, 500 responses have been received.

During the month of February the Works NEWS carried information on the following subjects: Civil Defense, safety contest in the Maintenance Divisions and Security Patrol; March of Dimes; Red Cross Fund Drive; Charles A. Coffin awards; employees' hobbies; employee sales plan; employment needs at Hanford Works.

Four women's pages appeared in the issues of the Works NEWS during February. More than 200 patterns were distributed to readers as the result of the feature on patterns in the February 2 issue. In the February 16 women's page the General Electric Lamp Department lighting recipes with mats and measurements were featured.

The first arbitration hearing in the history of the HAMTC Contract was held on February 9 in regard to the duties of Janitors and Floor Servicemen. The award, received February 23, approved the Company's position in this case. On February 9, the HAMTC ratified the Company's 3¢ wage increase offer applicable to the July 2, 1950, rates and retroactive to September 18, 1950. On February 12, the HAMTC gave notice of a desire to reopen the Contract for a wage adjustment. A consent election was held in the North Richland Powerhouse on February 23 with the employees voting ten to six against representation by the HAMTC. The NLRB scheduled a union shop election for March 13, 14 and 15. On February 1, the HAMTC

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advised the Company that they desired to process an additional case at the arbitration level, involving the work schedule of a carpenter.

The Davis Panel hearing on isolation pay concluded with the Panel requesting the contractors and union to submit weighted average wage information for all crafts since original isolation pay agreement in 1947. Interpretation of existing Wage Stabilization Board regulations allowed the placing into effect previously negotiated increases for Bricklayers, Plumbers, Electrician (Wiremen), Laborers and Operating Engineers. Continued delay in delivery of a vital project order due to a Sheet Metal strike in Portland was avoided by this office in cooperation with Purchasing and Design and Construction. An attempt by this office to induce the Plumbers Union to provide men for certain CPFF work outside the barricade met with failure as a result of a decision of the Union Executive Board. Work Stoppage - On February 27, Plumbers employed by Monterey (Early subcontractor) refused to handle certain pipe and fittings. Monterey has asked that the matter be heard by the Local Joint Board of Negotiators and/or Arbitrators (Master Plumbers and Union).

The GE Annual Northwest Area Wage Rate Survey was completed and will be printed and distributed to participants next month. The new rate structure for bargaining unit employees, the result of the 3% increase, was calculated and submitted to Payroll on February 19, 1951. Computation of retroactive payments from September 18, 1950, to February 12, 1951, was sent to Payroll on February 24, 1951. A review of nonexempt jobs in the Medical Division was begun. Meetings were held with representatives of the Instrument Division and the HAMTC for the purpose of studying job descriptions within the Instrument Division. A special survey was made of thirty architectural and engineering concerns along the Pacific Coast.

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EMPLOYEE AND COMMUNITY RELATIONS DIVISIONS

FEBRUARY, 1951

ORGANIZATION AND PERSONNEL

Employment and Employee Services

Effective February 5, 1951, a Steno-Typist "C" was employed and assigned to the Employment Group.

Effective February 19, 1951, a General Clerk "D" was employed and assigned to the Employment Group

Effective February 19, 1951, an Employment Investigator was employed and assigned to the Investigation and Files Group to replace an Employment Investigator and Interviewer "A" who resigned voluntarily February 16, 1951.

Effective February 26, 1951, a Business Graduate was engaged and assigned to the Employee Services Group.

Training and Program Development

No organization changes during month.

Community and Public Relations

No organization changes during month.

Union Relations

No organization changes during month.

Number of Employees on Payroll	February, 1951
Beginning of Month	98
End of Month	101
Net Gain	3

This gain of three employees is due to the stepped-up activities of the Employment Group.

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HW - 20434 DEL

Employee and Community Relations Divisions

ACTIVITIES

Employment and Employee Services

	January, 1951	February, 1951
Applicants interviewed	2,002	1,934

1,003 of the above applicants interviewed during February were individuals who applied for employment with the Company for the first time. In addition, 479 new applications were received through the mail.

Open Requisitions	January, 1951	February, 1951
Exempt	4	4
Nonexempt	573	548

Of the 573 open, nonexempt, nontechnical requisitions at the beginning of the month, 420 were covered by interim commitments. Of the 548 open, nonexempt, nontechnical requisitions at month end, 440 were covered by interim commitments. During February, 125 new requisitions were received requesting the employment of 215 nonexempt employees.

	January, 1951	February, 1951
Employees added to the rolls	171	215
Employees removed from the rolls	117	138
Net gain or loss	+ 54	+ 77

Of the 138 employees removed from the rolls, none were removed due to lack of work.

Turnover:	January, 1951		February, 1951	
	Male	Female	Male	Female
Excluding employees laid off for lack of work	1.15%	2.79%	1.83%	2.56%

Over-all Turnover:	January, 1951	February, 1951
Excluding employees laid off for lack of work	1.48%	1.73%

During February, 44 employees terminated voluntarily to accept other employment, 12 terminated to enter military service, 13 terminated to leave this vicinity.

6

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Employee and Community Relations Divisions

At the end of February, there were 64 employees in lack of work status, divided into the following categories:

	January, 1951	February, 1951
Nonbargaining unit employees	21	20
Bargaining unit employees	53	44

Transfer Data

Accummulative total of requests for transfer received since 1-1-1951	97
No. of requests for transfer received during February	51
No. interviewed in Feb., including promotional transfers	61
Trans. effected in Feb., including promotional transfers	38
Trans. effected to date since 1-1-51, including promotional transfers	69
Trans. requests active at month end	69
Trans. effected in Feb., for employees given lay off notices	0
Trans. effected since 1-1-51, for employees given lay off notices	0
No. of stenographers transferred out of Steno Pool in Feb.	5

During February, 13 people whose continuity of service was broken while in an inactive status were so informed by letter.

During February, in order to fill the demand for personnel (production operators, laboratory assistants, patrolmen, instrument mechanics, designers and draftsmen, registered nurses, and stenographers) advertisements were placed in newspapers in the states of Washington, Idaho, Oregon, California, Colorado and Utah, and spot radio announcements were given over local Washington stations. As a result of the above advertisements, 1,199 replies were received through the mail.

During the past month the Employment Office remained open on Saturdays to assist our recruiting program. On these Saturdays, 455 applicants were interviewed, of which 329 were new applicants. Of these, 89 were placed in process and 50 are pending.

In an attempt to recruit laboratory assistants, the following colleges were visited during February: Whitman, Walla Walla; Eastern Oregon College of Education, LaGrande; Central Washington College of Education, Ellensburg; Wenatchee Junior College, Wenatchee; and Yakima Junior College, Yakima. Forty-seven students were contacted at these schools, of which approximately 18 are potential candidates for laboratory assistant or accounting clerk positions; however, several others with degrees have been referred to our Technical Personnel Office as their qualifications are in line with their needs.

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Employee and Community Relations Divisions

Employment Statistics	1-31-1951	2-28-1951
Number of employees on rolls		
Exempt		
Male	1,883	1,894
Female	54	55
	1,937	1,949
Nonexempt		
Male	4,484	4,509
Female	1,529	1,569
	6,013	6,078
TOTAL	7,950	8,027

ADDITIONS TO THE ROLLS

	Exempt	Nonexempt	Total
New Hires	9	185	194
Re-engaged	0	5	5
Reactivations	2	14	16
Transfers from other plants	0	0	0
Actual additions	11	204	215
Payroll exchanges	24[a]	2[b]	26
GROSS ADDITIONS	35	206	241

TERMINATIONS FROM THE ROLLS

Actual Terminations	18	85	103
Removals from the rolls (deactivations)	3	32	35
Payroll exchanges	2[c]	24[d]	26
GROSS TERMINATIONS	23	141	164

GENERAL

	1-1951	2-1951
Applicants interviewed	2,002	1,934
Photographs taken	222	302
Fingerprint impressions (taken in duplicate)	561	485

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Employee and Community Relations Divisions

ABSENTEEISM STATISTICS
(Weekly Salary Rolls)[e]

	1-1951	2-1951
Male	2.50%	2.84%
Female	3.93	4.03
Total plant average	2.84	3.14

INVESTIGATION STATISTICS

Cases received during the month	702	534
Cases closed	241	244
Cases found satisfactory for employment	419	523
Cases found unsatisfactory for employment	32	21
Cases closed before investigations completed	65	28
Special investigations conducted	14	11

a Transferred from Weekly Payroll
b Transferred from Monthly Payroll
c Transferred to Weekly Payroll
d Transferred to Monthly Payroll
e Statistics furnished by Weekly Payroll Division

Employee Services

The following visits were made with employees during the past month by a representative of the Employee Services Group:

Employees visited at Kadlec Hospital	149
Salary checks delivered to employees confined to hosp.	60
Salary checks delivered to employees confined at home	13

During February, the Employee Services Group accepted the responsibility of organizing the plant Red Cross drive, by distributing all necessary forms and information to all divisions.

All supervisors received composite rating charts on nonexempt employees during the past month, which were prepared by the Employee Services Group.

In the past month, 2 notices were posted on all bulletin boards throughout the plant, namely: George Washington's Birthday Holiday and "America" series posters.

Four publications of Employee Benefits Information were prepared for release in the Works News during February.

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Employee and Community Relations Divisions

A representative of the Yakima office of the Social Security Board held two meetings this month with the Employee Services Group, to familiarize them with the provisions of the Old Age and Survivors Insurance Law.

As of the end of February, participation in Company Benefit Plans was as follows:

Pension Plan	95.8%
Life & Health Insurance	95.7
Employees Savings and Stock Bonus	38.6

One employee retired during the month, namely:

Clarinda Parvis, Medical Division.

During February, 14 letters were written to retired employees giving them information of a general nature which affects them.

A recanvass of eligible employees who are not participating in the Pension Plan was made through conveniently scheduled meetings, and as a result 10.2% of those who attended the meetings signed for participation.

Four local high schools were contacted during the past month and were given thorough explanations and information for completing requests for loans and scholarships under the General Electric Educational Assistance Program.

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	728
Employees registered who are veterans	451
Employees registered who are nonveterans	277
Employees classified as 1-A	134
Deferments requested to date	88
Deferments granted	42
Deferments denied and appealed at state level	6
Deferments denied & appealed at national level	5
Deferments requested, employees later reclassified	12
Deferments pending	21

The statistics with respect to employees who are members of the military reserve are as follows:

Number of reservists on roll	654
Number who have returned to active duty to date	39
Number who returned to active duty in February	5
Deferments requested to date	45
Deferments granted	41
Deferments pending	4

105 employees have terminated to enter military service since 8-1-1950.

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Employee and Community Relations Divisions

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TRAINING AND PROGRAM DEVELOPMENT

The Supervisors' 40-Hour Training Program was held during the week of February 12, 1951. A total of 34 supervisors attended this program. Again, a special luncheon was held at noon on Friday of the program week, at which the members of the group, together with six members of senior-management of Hanford Works, enjoyed an informal discussion of the results of the week's program. A group questionnaire completed by participating members indicated that the objectives of this program had definitely been reached. However, some unrest among the supervisors was indicated through this anonymous questionnaire in that many employees reporting to these supervisors are considering shopping in other industrial markets; namely, for a six-day a week operations. Seventy per cent of the supervisors attending this program have been in supervisory capacity at Hanford Works for more than three years. This is a high percentage of attendance to this program of existing supervisors throughout the divisions. Eight major divisions were represented by this group.

The 80 supervisors divided into PMS Groups 9, 10, 11, and 12, completed their conferences in February. A special dinner meeting was held on Thursday, February 15, at the Desert Inn, attended by 78 members of the groups, and 12 members of the Advisory Committee and Educational Committee as guests. Following the dinner, two special skits were presented by the four groups, and a brief talk was given by Mr. G. R. Prout. Following the presentation of the Completion Certificates to the members of the groups, the dinner meeting was adjourned. Many excellent comments have been received by both members and guests of these dinner meetings, resulting in considerable building of morale, cooperation, and good will between senior management and supervisory-management at Hanford Works. Announcement was made to all members of senior management regarding the start-up of four additional groups to include enrollment of supervisors working shifts. These groups are being started when the supervisors are on days. They will attend four-hour sessions on Friday and the following Wednesday while on days, which will bring them through completion of the 17 sessions of PMS in 17 calendar weeks, same as straight day supervision. Group 13 was started Friday, February 16, and Group 14 started Friday, February 23. Groups 15 and 16 will start up consecutive weeks in March. A total of 15 supervisors have been enrolled in each group, making a total of approximately 60 additional supervisors starting PMS. To date, approximately 240 supervisors have completed PMS at Hanford Works.

On February 2, 1951, a special meeting was held at the request of the "S" Division to present the 8-Hour Non-Exempt Training Program in the 200-W Area to a group of 18 "S" Division operators. This program includes the presentation and discussion of 17 subjects, and is proving extremely successful in increasing the morale and attitude of non-exempt employees throughout this Division. Tabulation of a survey questionnaire completed by members of this group indicates outstanding achievement in maintaining objectives.

A special dessert meeting was held the evening of February 7, at the Desert Inn, attended by 31 members of supervision from the Employee and Community Relations Divisions. The objective of this meeting was to review with members of the divisions a brief resume of the accomplishments

DECLASSIFIED

DECLASSIFIED HW-20438 DEL

TRAINING AND PROGRAM DEVELOPMENT

of 1950 and to set forth the objectives for 1951. Although this was an evening meeting, it was extremely well attended and well received by members of the Employee and Community Relations Divisions.

During the month of February,3 issues of the Hanford Works SAGE were prepared and mailed to all members of Hanford Works supervisory-management. The February 7, issue, included a special attachment, "Is Your Economics On Straight?", which is a booklet compilation of the 24 series of articles by Neil Carothers, as published weekly in the Hanford Works News in 1950. A special issue of SAGE was mailed February 13, announcing a special program and presentation for Civilian Defanse. This included the announcement of a four-night showing of the informative movie, "You Can Beat The Atom Bomb". Special tickets were prepared for each of the four night showings, February 19, 20, 21, and 22, in order to stimulate attendance by employees and members of their families. Tickets were made available through this distribution method to all employees in the Hanford Works. Additional distribution was made available to members of management of the Atomic Energy Commission and facility operators in Richland community. Six showings were made nightly, with a total attendance for the four nights approximating 8,000 people. Facilities of the Columbia High School auditorium and projection booth were used to show this film. Members of the Training and Program Development Staff worked these four nights in seating the public, operating lights, collecting tickets, and generally supervising the over-all presentation. Because of the total number attending the program, it was considered a successful venture, and consideration will continue to be given by Training and Program Development in disseminating similar information in the future in behalf of the Civilian Defense Program. Attached to the February 28, issue of SAGE was a complete, but brief, explanation of the Benefit Plan Status Report to be mailed to all employees on March 9. This explanation was deemed advisable in lieu of promoting a presentation program, inasmuch as members of supervision previewed the Benefit Plan Status Report a year ago, and have since been acquainted with the highlights and details of the various benefit plans included in this report. A review of this pertinent data by supervisors to whom the SAGE was mailed will prepare them for answering most questions which might be raised by employees relative to this Status Report.

A special letter, together with a schedule, was mailed to all exempt personnel at Hanford Works regarding the presentation of the HOBSO Program at Hanford Works. The schedule includes a total presentation of 228 meetings to be held, which amounts to 76 three-session presentations. During the week of February 19, approximately 221 exempt personnel completed the three sessions, and during the week of February 26, 188 completed the three sessions. With 50% of the schedule accomplished, 409 members of exempt personnel have attended the three sessions. At the request of senior management, special meetings are being presented on Saturdays for those exempt personnel who are too busy or unable to attend during the work week. However, attendance on Saturday meetings has been only six members to date. T. A. Purton of Training and Program Development presented the appreciation version of HOBSO to representatives of the Washington State Junior Chamber of Commerce at Grandview, Washington, on Sunday, February 11. This program was so well received that Mr. Purton has been requested to present the

12

DECLASSIFIED

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TRAINING AND PROGRAM DEVELOPMENT

appreciation version to the State Convention of Washington JayCee's in Seattle on Saturday, April 21. It is estimated that approximately 600 JayCee members will be present at the convention. Consideration is being given to a method of training members of the JayCee's to carry on the presentation of HOBSO among the local chapter committees as a state-wide campaign. Mr. R. C. Holmquist was advised of this situation at the time he was in Richland, and George Brown has since been kept informed.

A course in EFFECTIVE PRESENTATION is being presented by Mr. W. W. Chamberlain of Training and Program Development through the G-E School of Nuclear Engineering. It is expected that sections of this program will be considered for in-plant training purposes in the future. However, this is an excellent opportunity to make the complete presentation to a group of interested people paying a nominal tuition fee.

During the month of February, Orientation was given to five re-engaged and 193 new employees; a total of 198. Re-engaged employees indicated 100% participation in the G-E Insurance Plan, and 81.7% of the new employees signed to participate. Nonparticipants, or those electing not to participate in the plan, are widely varied over all Divisions of Hanford Works. The book, "You and G-E at Hanford Works" is being revised. All of the previous issues have been distributed. New employees will be furnished a copy when the new issue is completed.

In response to requests and inquiries by Superintendents and Division Heads at Hanford Works, 39 Employee Relations Handbooks were returned and reissued during the month of February. Each of the Handbooks were brought up to date in revisions. Of the total of 1500 Employee Relations Handbooks originally prepared for distribution to supervisors at Hanford Works, 42 copies are all that remain in stock for future distribution. It is expected that this number will suffice to fill the requests of senior management for the next 30 to 60 days. Following this, should demand warrant and justify expenditure, consideration will be given to the preparation of additional copies. A revision and complete re-writing of Section 1.7 (consisting of 7 pages) on Social Security, was completed and placed on printing order.

A total of 24 copies of the book, "Men and Volts" were sold to employees at Hanford Works by Training and Program Development during February. The cash for this sale was turned over to the G-E Cashier, and receipt is being maintained by the Training Division.

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DECLASSIFIED HW-20438 DEL

Community and Public Relations Division

PUBLIC INFORMATION - News Bureau

Interviews

Hill Williams, of the Tri-City HERALD, requested and was provided with the opportunity to interview three Hanford Works officials. They were C. N. Gross, of Manufacturing Divisions, Dick Foster of H.I. Biology Division, and R. E. Davison. From these he wrote two stories on Manufacturing Divisions, one on the H.I. aquatic lab and one on Davison's responsibility as Civil Defense Coordinator.

Don Carlson, of the Walla Walla UNION-BULLETIN, returned this month to discuss his bus transportation story with E. G. Jones and M. L. Rice. He originally published such a story in the Walla Walla BULLETIN and has sent a more detailed version to a trade journal, "Bus Transportation." They returned it with a number of questions which he presented Jones and Rice. He sent the final version of the story to the News Bureau for checking with Transportation and the AEC.

Leverett Richards, reporter, and Allan Deloy, photographer, both from the OREGONIAN, spent two days in Richland. News Bureau personnel, and Mina Miller in particular, helped them get photographs and information to use in a series of feature stories on Richland.

Meetings

The tour of Richland's municipal facilities conducted by the Municipal, Real Estate, and General Services Divisions for the newly installed community council was attended by the News Bureau Supervisor, and local representatives of both local daily papers. The News Bureau contacted the papers and radio stations to urge them to send representatives.

Requests

Both the Tri-City HERALD and Columbia Basin NEWS requested information on the effects felt at Hanford Works from important national developments. For example, they each made several requests aimed at uncovering local effects of the railroad strike, and the recently announced wage stabilization formula.

Coverage

A total of 62 news releases were written and distributed during February. Of these, 46 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:

DECLASSIFIED

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Safety - During February, Washington's Governor Langlie notified Richland that it tied with Walla Walla for first place in its population group in the governor's safety contest; and the National Safety Council congratulated Hanford Works on its excellent 1950 safety record. These events were publicized by the News Bureau and other stories were written publicizing a new safety film that has been received here, and warning residents to keep their children away from new housing construction.

Construction - Eleven stories were written to publicize bid invitations, and bid openings for construction work in Richland and at Hanford Works.

Speakers - F. K. McCune gave a talk describing the operation of Hanford Works and the protective devices used on the plant to a group of North Richland soldiers. W. A. McAdams has set up a course consisting of a series of lectures on radiological monitoring for delivery to a group of Pasco and Kennewick laymen. The News Bureau publicized McCune's talk and the monitoring course. It is expected that future stories will be written about the course.

Organization Changes - The establishment of the Engineering and Construction Divisions with R. E. Davison as Manager and the promotions of F. K. McCune and W. E. Johnson were publicized by separate stories. Additional stories were written on promotions in Purchasing and Stores. and Technical Divisions.

Other stories - Eight stories were written publicizing the Community recreation program, 6 power outages were publicized and 4 employee benefit plans stories were written. Another story announced the acceptance of the last wage increase by the HAMTC.

Space report - The space report which accompanies this monthly report of the News Bureau reveals that during January, 428 column inches were devoted by Pacific Northwest newspapers to stories concerning Richland and Hanford Works. Since November when the News Bureau first started preparing its space report, this is the largest amount of space reported.

PUBLIC INFORMATION - Community Relations

HOBSO will be sponsored in Richland by the local Kiwanis, Rotary, and Lions Clubs. Following the presentation of the "Appreciation" session to members of these organizations, the respective boards of directors voted to sponsor the Program, jointly, as a project for the year. The Clubs plan to present HOBSO to interested groups of residents, members of civic, business, church and school organizations, and any other group that expresses interest.

Presentation of HOBSO to high school seniors was discussed with the principal of the local high school. He said that once the Program is well under way in Richland, he believes parents will express a desire to have it offered in the schools. At that time, he will take the necessary action to have HOBSO introduced in the high school.

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HW-20438-DEL

The G.E. Educational Assistance Program was discussed with principals and student counselors of high schools in Richland, Kennewick, Pasco, and Benton City. All expressed interest and said they would furnish eligible students with information about the Program. In addition to the Educational Assistance Program, the principals and student counselors visited were particularly interested in the employment situation at Hanford Works. They requested and were furnished as much information as possible at the time about job openings, required qualifications, and opportunities for high school students. They were assured that the Company would welcome the opportunity to furnish speakers to address senior students about employment at Hanford Works. As a follow-up to the visits, principals were sent a "thank you for your courtesy" letter, along with bulletin board posters designed to stimulate interest in the G.E. Educational Assistance Program.

Publicity Chairman for the Hanford Works Supervisors' Association during 1951 will be the Community Relations Supervisor. He accepted the job at the request of the Association's president.

Bound copies of "Adventure Into the Unknown" were mailed to 21 principals of high schools located with a 75-mile radius of Richland. In the letter that accompanied each book, principals were acquainted with job opportunities at Hanford Works, and were urged to have students interested in a permanent position contact the employment office. A number of "thank you" letters for the books and information have been received from school officials.

An invitation to address the high school journalism class about journalism's role in public relations work was extended by the journalism instructor at the local high school. It is planned to fill this invitation in the immediate future.

Community mailings during February were as follows: Reprints of "Adventure Into the Unknown," the booklet "Things I've Been Thinking About," and a booklet-form collection of the articles "Is Your Economics On Straight?" were mailed to local educators and clergymen. The latter booklet was mailed to businessmen. Current issues of the Works NEWS, MONOGRAM and NEWS DIGEST were mailed to local educators, clergymen, and businessmen.

The showing of the motion picture, "You Can Beat the A-Bomb," was publicized in Richland through radio spot announcements, news stories, news photos, handbills, letters to local businessmen and clergymen, posters, and Works NEWS. More than 6000 people saw the movie during its recent showing in Richland.

A tour of Richland and an inspection of community facilities was completed by community councilmen, representatives of press and radio, and two members of the Community and Public Relations Division. During the day's tour, which was under the guidance of the community manager and his staff, Richland's water and sewage systems, police and fire departments, parks and recreation areas, and similar facilities were inspected. It is believed that friendly relations were more firmly established with representatives of public information media and community councilmen, as a result of the day's tour.

DECLASSIFIED

DECLASSIFIED HW-20438 DEL

Observations relative to the Public Administration Service's Report were submitted to the Manager of the Municipal, Real Estate and General Services Divisions in written form, at his request.

PUBLIC INFORMATION - Public Functions

Script preparation and development, color slide processing, procurement of projection equipment, art work, text and papers clearances and other assistance was rendered the Manager of Technical Personnel Office and his staff in the development of the program presented to representatives of the American Society of Educational Engineering in February. Those who received our assistance in one of the ways mentioned above are:

Papers and Speakers

W. K. Wood spoke on "Research and Development - Pile Technology Division." Howard E. Callahan appeared before the same group and presented his "Special Services Involving Engineering Background - E & C Relations Divisions." Charles P. Cabell delivered a lecture with slides on "Process and Utility Operations," also to the same group.

The Divisions Manager presented HOBSO to delegates of the Purchasing Agents Convention in Portland, Oregon.

William A. McAdams appeared before the Inland Empire Firemen in Spokane and spoke on "Radiation Effects of an Atomic Bomb Attack," using slides and charts to augment the presentation.

F. K. McCune and J. F genshau spoke to the 4th AAA U.S. Army Group an North Richland. Their subject was "A Demonstration and Presentation on Remote Control Tools Used in Atomic Energy." This was one of the regularly scheduled speaker appearances arranged for this group.

The supervisor of Public Functions conducted a "HOBSO Appreciation Session" for the Rotary and the Lions Clubs in Richland.

Four papers were processed for the Radiological Monitors' Course to be given in Pasco, beginning February 19. Four papers were processed for presentation at the Northwest AIEE meeting in Richland on February 26.

Films

The General Electric film, "Arc Welding at Work" was screened for a group of 80 General Electric men.

Radio

Three radio advertising campaigns were accomplished for Employment. A total of 210 announcements were booked with 14 radio stations in Washington, Idaho and Oregon. When time permitted, the announcements utilized talent from our group in tape recording for local broadcast.

DECLASSIFIED

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Employee and Community Relations

One minute spot announcements plugging "You Can Beat the A-Bomb," were tape recorded by a member of this group and broadcast approximately 15 times by local radio stations. In addition Beverly Keller in her daily homemaker broadcast urged the Richland housewives to attend the showing.

Program Development

Considerable and varied assistance was given the Technical Personnel Office in preparing for the visit of representatives of the American Society of Engineering Education. Complete visual aid equipment was supplied. In addition every lecture of the two-day session was tape recorded with the idea in mind of developing sound-slide presentations from the material recorded.

The section supervisor assisted a group of PMS students in the development of their graduation ceremonies. Routine services (dinner music, public address and tape recordings) were furnished as usual.

Arrangements were completed by Public Functions for the local exhibition of the Nuclear Energy Models for the Yakima Valley Science Exhibit on March 9, 10 and 11. Two members of the Technical Division will demonstrate and explain the operation of the exhibited equipment. This exhibit is backed by some of the country's prominent firms and will appear in Richland.

Photo House.

The lighting for badge photography was changed from tungsten to Fluorescent. Twenty-four 8" x 10" color prints were produced for the Transportation Division. Requests for photographic services continue to increase steadily. A total of 7,698 prints were produced this month, 940 more than last month and 4000 more than in December of 1950. It is necessary either to postpone or refuse from seven to ten requests per week, but optimum output of prints is being achieved within the limitation imposed by lack of space.

Art Work

"Artist's conceptions" and floor plan drawings of the new apartments, the "C" and the "K" types of houses were produced for the Real Estate Division. Four editorial and four "visualizer" cartoons were drawn. A poster was made to advertise "You Can Beat the A-Bomb," and color sketches were made for another civil defense poster and a car card. Artype lettering and copy was placed for a Civil Defense Handbill.

Considerable assistance was rendered in the preparation of the "E and C R Record." The "Security Handbook" dummy was redone. A column head, a pen and ink drawing, and three photo layouts were produced for the Works NEWS. A map of the 700 Area was traced in ink for the Sign Shop.

The Photo House tabulation is attached at the end of the report.

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Employee and Community Relations Divisions

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EMPLOYEE INFORMATION - Special Programs

Employee and Community Relations Divisions annual report was produced in the form of a tabloid newspaper, the "E and C R Record"; 1951 objectives were produced in form of an insert for the newspaper.

A four page technical recruiting brochure prepared during January for the Technical Personnel Office was received from the printer.

Civil Defense activities during the month included production of: Civil Defense Authority Bulletin No. 2; tickets for showings of the film, "You Can Beat the A-Bomb"; a poster publicizing the film; and a brochure explaining Richland Civil Defense organization.

"More Power to America" train invitation lists were checked with Division Managers, and assistance rendered in compilation of the lists.

Map of Richland was revised and brought up-to-date; copies were supplied on request to Hunt Advertising Agency for distribution to new residents.

A weekly Works NEWS question and answer column on health was initiated as part of the plant Health Activities Committee publicity activities provided by Special Programs.

The Employment Office remaining open on Saturdays during the month brought forth a coordinated publicity and advertising program in all nearby areas, as well as locally. People interviewed on Saturdays totalled 455 in February, and 700 written responses were received. A total of 210 radio announcements prepared and placed by Public Functions were broadcast over 14 stations during the month. Classified recruitment advertisements were placed in 12 daily newspapers. Works NEWS published stories of the need for personnel. Eight stories were prepared and released by the News Bureau, appearing in 13 newspapers throughout the Northwest.

Recruitment classified advertisements also were placed in 21 newspapers extending as far east as Denver for draftsmen and design draftsmen with approximately 500 responses to date; advertisements for vendor inspectors were placed in 4 newspapers.

Benefit Plan Statements for mailing to all employees on March 9 were publicized through the Works NEWS, and arrangements for obtaining appropriate envelopes were made.

Staff organization pages of the forthcoming Hanford Works organization chart and Employee and Community Relations Divisions page, were prepared and approvals obtained.

Placing of the Works NEWS each week in reception rooms in the Medical-Dental Clinic was arranged by Special Programs as a service to the Community Relations Supervisor.

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Employee and Community Relations Divisions

An interview with the Medical Divisions manager by a local newspaper reporter was arranged through the News Bureau, in line with Special Programs responsibility for Kadlec hospital and Medical Divisions public relations. The resulting news story lauded work of the Medical Divisions.

A letter to non-exempt employees in the North Richland powerhouse concerning the NLRB supervised consent election held during February was prepared for signature of the Manager, Engineering and Construction Divisions. All 16 powerhouse employees voted: 6 for representation by the HAMTC, and 10 against.

Production of a simplified map of the Tri-City Area, which will be sent to new and prospective employees, was handled by Special Programs. Production of a map to show new employees the route to W-10 from the Employment Office also was accomplished.

EMPLOYEE INFORMATION - Works NEWS

During the month of February the following programs and activities in the plant and community were publicized:

Civil Defense publicity was published advising employees that the Company had assumed responsibility for the organization, supervision and operation of the program in Richland and North Richland. A follow-up story was on announcing organization appointments. Stories were supplemented by an editorial cartoon and news story urging people to see showing of the film "You Can Beat the A-Bomb."

A full page syndicated feature was included with pictures showing emergency safeguards recommended for the safeguarding of American homes in case of air attack. Instructions on what residents should do if Civil Defense Signals sound were published.

Safety contests being conducted in the plant by the Maintenance Divisions and Security Patrol were featured giving complete progress report of the standings to date. Greater emphasis has been placed on including articles in "Lifeline" column that will help eliminate definite violations of safety regulations.

Specific reference to employees who have had an outstanding record for their safety performance was made, and pictures of them were run. Tribute to all employees by National Safety Council Head on their safety performance of the past year was featured.

Fund campaigns being conducted in the community and plant were publicized. Promotion of the March of Dimes Drive was completed, and Red Cross publicity of its Fund Drive has been started.

Charles A. Coffin Award to employee of Hanford Works was included in banner story, with follow-up on pictures of the presentation ceremony.

DECLASSIFIED

HW - 20438 DEL

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Human interest features of employees' hobbies, activities and accomplishments were prominently displayed. Recognition of employees for perfect attendance records was given, skiing trips by employees were featured as was violin-making hobby of two employees.

Special services were given to employee bowling enthusiasts by including bowling schedules for tournament; to physicians and surgeons of community for convenience of employees by listing their phone numbers which had been changed; to Security Division by listing the speakers available for security meetings and films available; to the United Council of Church Women by carrying appeal for all employees to observe World Day of Prayer; and to Employee Services Division and employees by listing the schedule of meetings to be held in the Areas for information on the Pension Plan. The Neil Carothers articles, in reprint form, were distributed to all employees making requests.

New columns were introduced in the Works NEWS to appear periodically. "Clothing Facts for Men" will appear from time to time, and will present to men information helpful to them in knowing what to buy and what to wear. "To Your Health" is a column to appear weekly which will include questions and answers on items concerning employees' health.

Employee Sales Plan publicity was included giving employees information on special employee prices on items available through the employee store in Schenectady.

Employment needs have been run weekly per request of the Employment Division.

Other activities of Works NEWS included: complete review of bids submitted for printing of paper and analysis made per request of the Purchasing Division; bid was awarded to Columbia Basin NEWS. Reporter letters were written and sent out. One twelve and three eight page papers were published during the month.

EMPLOYEE INFORMATION - Women's Activities

Four women's pages appeared in the four issues of the Hanford Works NEWS during February.

More than 200 patterns were distributed to readers as the result of the feature on patterns in the February 2 issue of "Today's GE Woman." Patterns were all either embroidery or crochet work which prove to be more popular with readers than other types of patterns. Also run was a Consumers Institute article on moths and moth damage.

February holiday desserts and a Consumers Institute mat on filing recipes were featured on the February 9 women's page.

General Electric Lamp Department lighting recipes with mats and measurements were featured in the women's page on February 16.

Interior decoration of dormitory rooms by tenants was featured on February 23. The rooms of three Hanford Works employees were used in photographs for the feature.

DECLASSIFIED

HW - 20438 DEL

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Employee and Community Relations Divisions

During February, "What's Doing", a service feature to employees publicized the following organizations and events: Richland Players, Boy Scouts, Concordia Choir, Town Hall Lecture series, Community Concert series, Patrolmen's Benefit Ball, Richland Symphony Orchestra, Parent-Teacher's Association, I-Macs, Parks and Recreation Division Valentine booklet, Y.W.C.A., Electrical Recreation Association, Iowa State Alumni, Hi-Life Club, fly-tying classes, a film on Korea, and junior archery classes.

Ten stories were written for local release for Municipal Parks and Recreation Division. One story was prepared on request of the Columbia Basin NEWS about G.E.'s new playground supervisor.

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NEWSPAPER SPACE REPORT
January, 1951
As compiled from Nucleonics Department News Bureau Clipping Files

SUBJECT	NEWSPAPERS	DATE	COLUMN INCHES	PHOTOS
Hanford Works Print Shop feature	Tri-City HERALD	Jan. 7	13	1
Hanford Works Glass Shop feature	SPOKESMAN-REVIEW	Jan. 24	16½	1
Organization Announcements	Walla Walla UNION-BULLETIN Columbia Basin NEWS Tri-City HERALD	Jan. 23-27	27	
G.E. Insurance Plan	Tri-City HERALD	Jan. 10	4 3/4	
	Columbia Basin NEWS	Jan. 11	2	
	Walla Walla UNION-BULLETIN	Jan. 11	4½	
Suggestion Award	Columbia Basin NEWS	Jan. 12	5½	
	Walla Walla UNION-BULLETIN	Jan. 14	4½	
Income Tax Aid	Columbia Basin NEWS	Jan. 20	3	
	Walla Walla UNION-BULLETIN	Jan. 25	2½	
Union Pay Request Refusal	Tri-City HERALD	Jan. 25	5½	
Dr. Weidenbaum Speech	San Francisco BULLETIN	Jan. 5	2	
	Portland Daily JOURNAL OF COMMERCE	Jan. 9	5	
	San Francisco EXAMINER	Jan. 9	2	
	Walla Walla UNION-BULLETIN	Jan. 10	4	
G.L. Brown's Speech at University of Washington	U. of W. DAILY	Jan. 11	2	
H. E. Callahan's Speech in Spokane	Tri-City HERALD	Jan. 17	2	
	Walla Walla UNION-BULLETIN	Jan. 18	2	
	SPOKESMAN-REVIEW	Jan. 19	3½	
Hanford Essential to U.S.	Tri-City HERALD	Jan. 9	4½	
	SPOKESMAN-REVIEW	Jan. 10	2	

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HW-20438 DEL

SUBJECT	NEWSPAPERS	DATE	COLUMN INCHES	PHOTOS
Cons ruction of Hot Semi-Works	Seattle Daily JOURNAL OF COMMERCE	Jan. 5	5½	
	Spokane CHRONICLE	Jan. 5	2	
	Columbia Basin NEWS	Jan. 5	4½	
	Walla Walla UNION-BULLETIN	Jan. 5	2½	
	Yakima REPUBLIC	Jan. 5	2½	
	Yakima HERALD	Jan. 9	2	
	SPOKESMAN-REVIEW	Jan. 9	2	
	Prosser BULLETIN	Jan. 11	1	
Substation Job at Hanford Works	Seattle Daily JOURNAL OF COMMERCE	Jan. 6	7	
	Spokane CHRONICLE	Jan. 5	2	
	Columbia Basin NEWS	Jan. 18	2½	
	Tri-City HERALD	Jan. 18	2½	
	Walla Walla UNION-BULLETIN	Jan. 18	2	
	SPOKESMAN-REVIEW	Jan. 19	2	
	Spokane County NEWS	Jan. 19	2	
	Portland Daily JOURNAL OF COMMERCE	Jan. 20	4	
Bids on Lighting System	Tri-City HERALD	Jan. 10	2	
	Walla Walla UNION-BULLETIN	Jan. 11	2	
	Spokane SPOKESMAN-REVIEW	Jan. 12	3½	
	Seattle Daily JOURNAL OF COMMERCE	Jan. 12	2½	
	Portland Daily JOURNAL OF COMMERCE	Jan. 12	3	
Installation of New Traffic Lights	Columbia Basin NEWS	Jan. 11	4	
	Tri-City HERALD	Jan. 11	4	
	Walla Walla UNION-BULLETIN	Jan. 11	4	
Remodeling Kadlec Hospital	Walla Walla UNION-BULLETIN	Jan. 27	2	
	SPOKESMAN-REVIEW	Jan. 31	2½	
Hiring at Hanford	Spokane CHRONICLE	Jan. 12	2	
	Columbia Basin NEWS	Jan. 12	5	
	Tri-City HERALD	Jan. 12	2½	
	Walla Walla UNION-BULLETIN	Jan. 14	4½	
	Columbia Basin NEWS	Jan. 16	2	
	Wenatchee World	Jan. 17	2	

3.18

DECLASSIFIED

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SUBJECT	NEWSPAPERS	DATE	COLUMN INCHES	PHOTOS
Hiring at Hanford (Continued)	Tri-City HERALD	Jan. 18	2	1
	Issaquah, Wash.	Jan. 18	4½	
	Columbia Valley ADVOCATE	Jan. 18	6½	
	Goldendale, Wash.	Jan. 18	3	
	Lake City CITIZEN, Seattle	Jan. 18	4	
	Cle Elum, Wash.	Jan. 19	2	
	Columbia Basin NEWS	Jan. 19	2	
	Walla Walla UNION-BULLETIN	Jan. 21	2	
	Yakima REPUBLIC	Jan. 22	1	
	Yakima HERALD	Jan. 23	1½	
	Columbia Basin NEWS	Jan. 25	2½	
	Prosser BULLETIN	Jan. 25	2	
	Tri-City HERALD	Jan. 26	3	1
	Walla Walla UNION-BULLETIN	Jan. 26	2	
	SPOKESMAN-REVIEW	Jan. 27	2	
	Tri-City HERALD	Jan. 31	2	
Guide to Richland	Tri-City HERALD	Jan. 16	5	1
	Columbia Basin NEWS	Jan. 16	3½	1
Cutting of Richland Trees	Tri-City HERALD	Jan. 19	2	
	Columbia Basin NEWS	Jan. 19	2	
	Walla Walla UNION-BULLETIN	Jan. 21	3	
Richland Park Board	Walla Walla UNION-BULLETIN	Jan. 21	5	
Power Outages	Tri-City HERALD			
	Columbia Basin NEWS	Jan. 3-25	36	
	Walla Walla Union-BULLETIN			
Fire Protection	Columbia Basin NEWS	Jan. 4	3¼	
	Tri-City HERALD	Jan. 5	3	
	Columbia Basin NEWS	Jan. 5		1
	SPOKESMAN-REVIEW	Jan. 7	6	1
	Walla Walla UNION-BULLETIN	Jan. 14	6½	

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SUBJECT	NEWSPAPERS	DATE	COLUMN INCHES	PHOTOS
Richland Patrolmen	Tri-City HERALD	Jan. 2	6	1
	Spokane CHRONICLE	Jan. 3	6	1
	Walla Walla UNION-BULLETIN	Jan. 4	7	
	Tri-City HERALD	Jan. 5		1
	Oregon JOURNAL	Jan. 7	6	1
	OREGONIAN	Jan. 8	2½	
	Columbia Basin NEWS	Jan. 23	8	
Safety Stories	Columbia Basin NEWS	Jan. 6	7	
	Seattle Daily JOURNAL OF COMMERCE	Jan. 24	4	
	Columbia Basin NEWS	Jan. 30	7	
	SPOKESMAN-REVIEW	Jan. 31	4½	
	Bremerton SUN	Jan. 31	3	
Lady from Safetyland Feature	Walla Walla UNION-BULLETIN	Jan. 21	11	1
Safety Shoe Bus Feature	Tri-City HERALD	Jan. 18	8	2
Civil Defense	Columbia Basin NEWS			
	Walla Walla UNION-BULLETIN	Jan. 18	19	
	Tri-City HERALD	Jan. 18	19	
Progress Edition, 1951	Walla Walla UNION-BULLETIN	1951	60	5
TOTAL			428 sq. in.	20

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Hanford Works Photo House

DIVISIONS	2" x 2"	2" x 4"	5" x 7"	8" x 10"	11" x 14"	Color Slide 35 mm	16mm B & W	Portrait	Hand Prints	Negatives	4" x 5"	Film repair
ENG'RING & CONSTR. DIV.												
Miscellaneous				14						5		
Reactor				39						7		
Design			2									
Separations				32						12		
EMPLOYEE & COMMUNITY REL.	1208		27							302		
Employee Relations	1208		27							302		
Community Relations			22	10						12		
News Bureau			98	378						85		
Special Programs			23	7						26		
Works NEWS			155	12							35	
Training				52						40	19	
HEALTH INSTRUMENT				10								
MANUFACTURING DIVISIONS												
Instrument				20	32							
Transportation*				71*	2					67	24	
S Division				38						20		
Maintenance			29	10						33		
MEDICAL DIVISIONS				38						38		
MUNICIPAL, REAL ESTATE & GENERAL SERVICES												
Community Safety			2	12						8	11	7 rls.
Community Police			63									
Community Fire				8								
Engineers & Contract				5						3		
Real Estate				6								
PLANT SECURITY & SERVICE												
Security	4229	662										
STAFF ORGANIZATION												
Rotational Training										16	40	
TECHNICAL DIVISIONS												
Pile Technology				150						12		
MISCELLANEOUS												
Civil Defense			30	19						13		
A.E.C. Security											74	
A.E.C. Safety				4						10		
TOTAL	5437	662	451	935	34	0	0	0	0	817	179	7 rls.

	Dec., 1950	Jan., 1951	Feb., 1951
Total Prints	3,275	6,758	7,698
Total Negatives	471	538	817
Total Assignments	86	108	136

* 24 of this number are color prints

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Union Relations and Wage Rates

Union Relations - Operations Personnel:

A hearing with J. Gordon Gose, Arbiter, was held on February 9, 1951, to discuss the case involving duties performed by Janitors and Floor Servicemen, this being the first case presented at the arbitration level since the inception of the HAMTC Contract. A decision and award was received on February 23 confirming and approving the Company's position in this dispute.

The Company was advised on February 9 that the HAMTC had ratified and accepted the Company's offer of a three per cent wage increase (four cents an hour minimum) applicable to the rates in effect on July 2, 1950. This was to be made retroactive to September 18, 1950.

The HAMTC gave the Company notice on February 12 that it desired to reopen the Contract for discussion of wage adjustments within the thirty day notification period as prescribed by the Contract.

Under the direction of the NLRB, a consent election was held in the North Richland Powerhouse on February 23, 1951. This was in response to a petition from the Council seeking to represent the various crafts operating within that facility. Employees involved voted ten to six in opposition to becoming affiliated with the HAMTC.

A representative from this division went to Washington, D. C. on February 23 for further discussion with Government and labor officials concerning the Davis-Bacon Act and its application to Hanford Works.

The National Labor Relations Board advised the Company that it was scheduling a union shop election, tentatively set for March 13, 14 and 15. A member of this division spent some time with the NLRB representative in outlining details and completing plans for this election.

An understanding was reached with the Council that clarified the allocation of overtime as it pertained to Machinists, both Maintenance and Instrument, primarily in the 101 Building. It is understood that before either craft within that building is placed on a six-day per week schedule, consideration will be given to equitably distributing the work load between the two crafts involved. A matter of long standing which concerns these crafts was the Council's request that Instrument and Maintenance Machinists seniority lists be combined in one seniority group. With some reluctance the Company indicated that it would concede to the Council's request.

On February 1, the HAMTC advised the Company that they desired to process an additional case at the arbitration level. This matter involved the work schedule of a carpenter who the Council contended had been given an assignment outside his regular schedule of hours and as a result should have received compensation at a time and one-half rate.

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Employee and Community Relations Divisions

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Grievance Statistics

One grievance was received during the month. The grievance originated within the bargaining unit in the "S" Division and pertained to Article VIII (Overtime Rates) of the Collective Bargaining Agreement with the HAMTC

The status of grievances received in 1951 as compared to those received during the same period in 1950 is as follows:

Total received during February, 1951	1
" " " February, 1950	16
Total received through February, 1951	17
" " " February, 1950	39
Settled at Step I during February, 1951	3*
" " " " February, 1950	11
At Step II at close of 1950	11
Settled at Step II during January, 1951	--
At Step II at start of February, 1951	19
Settled at Step II during February, 1951	6*
At Step II at close of February, 1951	13*

*Includes grievances received prior to February, 1951.

At arbitration at close of 1950	5
Settled by arbitration during January, 1951	-
At arbitration at start of February, 1951	5
Settled by arbitration during February, 1951	2
At arbitration at close of February, 1951	3

Six per cent of the total grievances received this year have been submitted by employees outside the bargaining unit.

There was one meeting held during the month with the Council Grievance Committee for the purpose of discussing grievances at the Step II level.

Union Relations - Subcontractor Personnel:

The isolation pay dispute between Hanford Works contractors and the Unions signatory to the Master Agreement which was heard by the Davis Panel in New York on February 12 and 13 resulted in a request by the Panel that the Contractors and the Union submit weighted average wage information on all crafts since the original isolation pay agreement in 1947. An expression from the Panel should be forthcoming in the near future.

The two Operating Engineer working rules, viz.: (1) Operating Engineers be required to work only under foreman of their craft, and (2) an Operator and Oiler be on hand to assist Mechanic on repair of heavy equipment, scheduled to be heard by the Davis panel were never presented. In private discussions in

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New York, agreement appeared to have been reached; however, it was later decided to return the matter to the local level for further negotiation.

During February, agreements were reached with the following: Ironworkers reinforcing, $2.35 (was $2.25), and structural, $2.50 (was $2.30) effective February 12, 1951, and Carpenters increases of approximately fifteen cents per hour (Journeyman was $2.20) effective February 21, 1951. It is understood by the parties that the above agreements will become effective only if Wage Stabilization Board approval is obtained or the increases fall within the standard wage formula which is anticipated from that agency.

On February 26, V. S. Jonkins Company agreed to a rate of $2.90 (was $2.55) for Asbestos Workers. Neither Atkinson-Jones nor General Electric were present at negotiations. To date, neither Wage Stabilization Board, nor General Electric or AEC approval of this increase has been requested. Interpretations of existing regulations by the Wage Stabilization Board in Washington and the Wage and Hour and Public Contracts Division of the Department of Labor allowed the placing into effect the following previously negotiated increases: Bricklayers ($2.75 to $3), Plumbers ($2.50 to $2.75), Electrician Wiremen ($2.50 to $2.65), Laborers (averages fifteen cents), and Operating Engineers (averages fifteen cents).

The threatened strike at Willamette Iron and Steel (reported last month) failed to materialize; however, Sheet Metal Workers have been out on strike at the American Sheet Metal Company. Willamette had farmed out to this company part of the work on essential hoods, etc., being fabricated for Hanford. The delay in delivery of this order was seriously affecting our construction program. This office, in cooperation with Purchasing and Design and Construction, arrived at a course of action, viz.: Atkinson-Jones was requested to arrange for a Project truck to cross the American Sheet Metal picket line, pick up the material and bring it to the Project for completion of fabrication by Atkinson-Jones. This was accomplished on February 23 after assurance was obtained that craftsmen here on the Project would work on the material after it arrived. The above action has apparently successfully concluded the matter.

On January 30, 1951, the Operating Engineers and Atkinson-Jones signed a Letter Agreement which provided for (1) continuation of the present Master Agreement, (2) inclusion of heretofore agreed-upon working rules, (3) Spokane rates effective January 1, 1951, and (4) set forth the two working rules to be submitted to the Davis Panel (see above). A Schedule "A" embodying the above terms, excepting the Master Agreement continuation clause, was signed on February 7, 1951.

An attempt was made by this office to induce the Plumbers Union to furnish men to Urban, Smyth and Warren to perform certain CPFF construction work outside the barricade. After purportedly considering the matter and presenting it to the Union executive board, we were informed by the Business Agent that the Union would not supply men for this work on a CPFF basis.

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Requests for Reimbursement Authorizations handled during the month:

1. Plumbers and Steamfitters - Wages
2. Electrician (Wiremen) - Wages and Classifications
3. Laborers - Wages and Classifications
4. Bricklayers - Wages and Classifications
5. Operating Engineers - Wage and Classifications

All of the Requests were approved during the month.

Work Stoppages

On February 27, Plumbers employed by Monterey Company (Early Company subcontractor) refused to handle certain pipe and fittings. The reasons given for this action were(1) pipe was fabricated in Portland at wages less than those prevailing here on the Project, and (2) fittings were fabricated in a non-union shop. Monterey has requested that the matter be heard by the Local Joint Board of Negotiators and/or Arbitrators (Master Plumbers and Union).

Wage Rates:

Visitations in connection with the Annual General Electric Company's Northwest Area Wage Rate Survey were completed, and averages are presently being computed. The survey will be printed and distributed to the participants next month.

The freeze placed upon wages by the action of the Wage Stabilization Board was lifted to some extent, and the administration of our rate structure was resumed as outlined in our nonexempt plan.

The acceptance of the 3% wage increase by the two certified unions on February 9 made it necessary for the Wage Rate Division to calculate and submit to the Payroll Division a current status of the new rate structure for approximately three thousand bargaining unit employees. This information, including computation of the increase retroactive to February 12, 1951, was given to the Payroll Division on February 19, 1951.

Computation of all retroactive payments due bargaining unit members between September 18, 1950 and February 12, 1951 was completed and notification was given to the Payroll Division on February 24, 1951.

During the month a special survey was made of approximately thirty architectural and engineering concerns along the Pacific Coast to obtain the current rates of pay for draftsmen and designers. The results of this survey indicate that steps must be taken to increase the rates in these classifications at Hanford Works in order to place us in a competitive position to attract this type of help.

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During the month of February a review of nonexempt jobs in the Medical Division was begun. A check of job classifications with reference to job duties performed is being made, and such adjustments as are required will be recommended when the review of all jobs is completed.

Three meetings were held with Instrument Division personnel and representatives of the Hanford Atomic Metal Trades Council to study descriptions of individual jobs performed by Instrument men with reference to Instrument Specialist work. This study is to be continued for the purpose of determining the quantity and type of such work performed on this project.

A new rate schedule for Technical Graduates and Business Graduates was put into effect in February and made retroactive to January 8, 1951.

A study of the pre-employment experience of all Plumber Steamfitter Handymen was made to determine the dates when each will have sufficient experience to become eligible for upgrade. A schedule of the dates was established, and the divisions concerned have been notified.

A meeting with representatives of Community Division Supervsision and representatives of the Hanford Atomic Metal Trades Council was held regarding the classification of work in the Sewage Disposal Plant.

Several jobs were reviewed in the Cost Section of the General Accounting Division.

A study of Instrument Maker work was started in the Technical Division to determine the amount of such work performed and the number of personnel required to perform it.

Insurance, Workmen's Compensation and Suggestion System:

Suggestion System

	January, 1951	February, 1951	Total since 7-15-47
Suggestions Received	184	124	6247
Investigation Reports Completed	177	160	
Awards granted by Suggestion Committee	24	45	
Cash Awards	$ 475.00	$ 410.00	
Estimated Savings	5,143.20	2,043.08	

The largest single award made during the month of February was to an employee in the Maintenance Division for his suggestion concerning the placing of a bronze spacer on sliding gear sleeve No. 1038 on the Lodge and Shipley lathes to hold the sliding and reducing gear in a fixed position. A substantial savings in material and labor was realized through the adoption of this suggestion.

Liability Insurance

One case under litigation was closed during the month.

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Life Insurance

Code information which is known only to Home Office Life Underwriters Association has been furnished 42 insurance companies and investigation agencies during the month of February, 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

	January, 1951	February, 1951	Total since 9-1-46
Claims reported to the Department of Labor and Industries	127	57	4080
Claims reported to Travelers Insurance Co.	5	7*	485

*Of the above claims reported during February to the Travelers Insurance Company, five were property damage claims and two were bodily injury claims.

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MUNICIPAL, REAL ESTATE AND GENERAL SERVICES DIVISIONS
SUMMARY - FEBRUARY, 1951

ORGANIZATION AND PERSONNEL

Number of employees on roll:	BEG. OF MONTH	END OF MONTH
Administration	12	12
Accounting	31	32
Engineering & Contracts	32	34
Municipal Divisions (Total 235)		
Public Works	103	104
Parks & Recreation	34	33
Police (Richland)	44	41
Fire (Richland)	55	54
Public Safety	3	3
Real Estate Divisions (Total 215)		
Housing & Real Estate Maintenance	204	203
Commercial & Other Property	13	12
General Services Divisions (Total 132)		
Steam & General Maintenance	81	79
Patrol (North Richland)	20	19
Fire (North Richland)	35	34
	667	660

There was a decrease of seven employees in the Divisions during the month of February, 1951.

GENERAL

The Richland Community Council was conducted on a tour of Municipal facilities on February 23, 1951.

The Richland Community Council and School Board elections were held on February 3, 1951. Two Councilmen-at-large and two District Councilmen were elected to the Richland Community Council and one School Board member was elected to the School Board.

Richland tied for first place in the 20,000 to 50,000 population class of the Governor's Traffic Safety Contest.

The ten prefabricated houses moved from Columbia Camp were renovated and allocated to the master housing list.

Total housing applications pending - 505.

HARoot/jak
3/13/51

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MUNICIPAL, REAL ESTATE AND GENERAL SERVICES
ACCOUNTING DIVISION

MONTHLY REPORT FOR FEBRUARY, 1951

ORGANIZATION

Employees - Beginning of month	31	Exempt	5	Male	9
Transfers In	1	Non-Exempt	27	Female	23
Transfers Out			32		32
New Hires					
Terminations	—				
Total end of month	32				

RENTS

House Leases Processed	February	January
Total active leases beginning of month	5,715	5,710
New leases	74	78
Cancellations	67	73
Total active house leases end of month	5,722	5,715
Modifications	16	8

Dormitory		
Total occupancy beginning of month	988	964
New assignments	123	105
Removals	91	81
Total occupancy end of month	1,020	988

Rental Revenue was as follows:

Equipment	$ 18.80	$ 18.80
Houses		
Basic Rent	198,292.79	198,136.59
Electricity	48,554.66	48,535.41
Water	8,039.70	8,043.70
Steam	1,780.80	2,131.75
Dormitory	13,967.86	13,318.18
Facility		
Basic Rent	29,636.55	43,016.63
Electricity	3,433.92	3,433.92
Water	490.00	490.00
Steam	6,724.69	8,261.20
Utilities--Electrical	1,837.73	2,033.85
	$ 312,777.50	$ 327,420.03

TELEPHONE

Number of work orders processed	169	180
Number of working telephones	5,068	5,079
Revenue including services	$ 18,559.02	$ 18,522.58

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Municipal, Real Estate and General Services Accounting Division

MISCELLANEOUS

	February	January
Invoices prepared during month	346	328
Revenue derived from invoices	$ 6,344.67	$ 6,271.00

GENERAL

Forty-eight collection letters were written resulting in the collection of forty-one delinquent accounts totaling $439.67.

Six accounts were submitted to Yakima Adjustment Service.

Previously submitted 41 accounts	$ 521.77
Submitted in February 6 accounts	210.88
Collected by Yakima Adjustment Service	29.51
Collected by General Electric Company	87.84
Balance Agency Accounts	$ 615.30

Twenty minor balance accounts in the amount of $3.58 were written off.

Fifty-three of the eighty-one active telephone accounts delinquent thirty days or more as of January 31, 1951, were paid during February.

ACCOUNTS PAYABLE

Statistics	February	January
Accounts payable vouchers	272	209
Freight Bills processed	22	19
Purchase orders received	92	81
Net amount of purchase orders	20,937.78	58,703.43
Receiving Reports received	116	103
Total net amount disbursed	209,775.10	90,325.46
Number of checks issued	210	166

A summary of Active Subcontracts is shown below:

Subcontractor	Subcon. Number	Amount Awarded	Paid This Month	Total Paid	Amount Retained
Newland Cafeteria	----- *	158.50	18.90	158.50	-0-
Richland Maintenance Co.	----- *	160,708.60	6,954.13	160,708.60	-0-
Associated Engineers	G-305	126,133.65	4,712.61	113,583.60	5,978.08
Empire Electric Co.	G-310	17,010.00	17,010.00	17,010.00	-0-
Grant, Algot C.	G-318	26,956.59	-0-	23,100.54	615.00
Packard Pipe & Pump Co.	G-326	12,336.00	-0-	2,169.22	241.03
C & E Construction Co.	G-328	173,575.45	-0-	165,644.44	8,678.77
F. O. Repine Co.	G-329	29,263.00	-0-	3,950.50	438.95
Pasco Electric Co.	G-331	7,035.70	3,644.48	6,683.91	351.79
Erwen, Edmund P.	G-334	16,000.00	-0-	-0-	-0-
Baldwin & Dunham Co.	G-343	652,080.00	128,788.29	164,872.58	18,319.18
Roof Service Inc.	G-350	59,879.00	-0-	-0-	-0-
Comm'l Paint & Decor. Co.	G-353	19,600.00	-0-	-0-	-0-
		1,300,736.49	161,128.41	657,881.89	34,622.80

* Total amount of contract will be total of estimates submitted.

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COST

Reports

The January Operating Report was issued February 19. 1951. The Comptroller Appropriation Report and Supplemental Report were issued on February 15, 1951. The January Utilities Report was issued February 26, 1951. The Construction Budget Status Report was issued February 23, 1951. The Operations Budget Status Report was issued February 23, 1951.

Budget

Operations

The fourth quarter budget review was completed and submitted to the Comptroller's office on February 9, 1951.

Work sheets were made for Division Managers' use in preparing FY 1952 review and FY 1953 budget.

Construction

The fourth quarter review was completed and submitted to J. P. Holmes.

Service Orders

Code	QUANTITY (A) Jan.	QUANTITY (A) Feb.	LABOR COSTS Jan.	LABOR COSTS Feb.	MATERIAL COSTS Jan.	MATERIAL COSTS Feb.	TOTAL COSTS Jan.	TOTAL COSTS Feb.
1	1,151	1,375	$2,352.05	$2,616.95	$1,859.97	$2,101.69	$ 4,212.02	$ 4,718.64
2	2,810	2,922	3,086.43	3,374.30	4,241.19	4,571.02	7,327.62	7,945.32
3	413	533	1,070.30	1,180.79	1,029.26	1,182.41	2,099.56	2,363.20
4	5	4	4.72	3.32	-0-		4.72	3.32
5	196	274	365.33	735.21	603.35	1,554.45	968.68	2,289.66
6	350	358	968.80	901.95	347.69	325.92	1,316.49	1,227.87
9	4	15	12.60	73.85	14.61	50.62	27.21	124.47
	4,929	5,481	$7,860.23	$8,886.37	$8,096.07	$9,786.11	$15,956.30	$18,672.48
Difference(B)	≠552			≠1,026.14		≠1,690.04		2,716.18
Average Cost (C)			1.59	1.62	1.64	1.79	3.23	3.41

(A) Quantity covers the number of Service Charges made since each Service often includes several charges.
(B) Over (≠) or Under (-) Previous month.
(C) Average Material Cost Increase resulted from receipt of material and completion of orders on back log using items with larger unit cost, e.g. Toilet Seats.

1 Plumbing
2 Electrical
3 Heat & Vent.
4 Glazing
5 Lock & Key
6 Carpentry
9 Sheetmetal

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Municipal, Real Estate & General
Services Accounting Division

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Work Orders

	December	January	February	Net Change
Active Routine	280	285	288	∠ 3
Active Normal	2,911	2,920	2,974	∠ 54
	3,191	3,205	3,262	∠ 57
W. O. Received	1,430	1,440	1,578	
W. O. Completed	1,584	1,548	1,521	
	- 154	- 108	∠ 57	

GENERAL LEDGER

	No.	Debit	Credit
Second Class Invoices Received	96	$506.301.77	$376,681.28
Second Class Invoices Issued	60	64,555.03	3,118.39

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ENGINEERING AND CONTRACTS DIVISION
MONTHLY REPORT
FEBRUARY 1951

ORGANIZATION AND PERSONNEL:

Number of employees on payroll	Exempt	Non-Exempt	Total
January 31, 1951	18	14	32
February 28, 1951	18	16	34

Report on extended engineering service requests:

		Completed during February
ESR-97-CH	Electrical and structural inspections	14
ESR-118-CH	Approved alteration permits	2
ESR-378-CH	Review plans and specifications for tenant-erected garages	2

The following engineering service requests were completed and closed out:

ESR No.	Description
268-PW	Replace Roof, South Reservoir: Cancelled 2-28-51.
285-CH	Painting vs Siding--A&J Houses: Funds not approved. Cancelled.
356-CH	Relief Valves--Residential Water Heaters: Cancelled.
379-CH	Interior Painting, Scheduling, and Contracting.
397-PW	Radio Communication System for Tenant Service: Letter transmitted to R. H. Hopkins 2-28-51 requesting instructions to close this ESR.
449-CA	Relocate Partition in Fire Station No. 1.
450-CA	Fencing Riverside Park.
471-PW	DeRussy Place, Macomb Place and Gaillard Place: Completed 1-29-51. Study and estimate closed out 2-28-51.
477-RM	Relocation of Access Panels, U & V Type Houses.
485-CH	Exterior House Painting, Divisions I, II, III, IV, V, VII
504-RC	Acceptance of Addition to Medical-Dental Building
518-AEC	Plan Checking--703 Building Addition.

Progress report on ESRs that will become projects:

ESR No.	Title and Remarks
314-CH	Rewiring Tract House L-901: 40% complete. Awaiting decision of Housing Division on electrical heat.
341-SS	Streets and Walks--700 Area: Estimate and plan for project proposal completed. Rough draft of project proposal prepared and circulated for comments on 2-28-51.
379-CH	Interior Painting, Scheduling and Contracting: 90% complete. Shaw's letter to Huck approved work to proceed without project proposal.
402-PW	1951 Street Improvement:

(a) Wright Avenue: Plan and profile sheet completed for entire job. Proposed grade designed for entire job. Curb, gutter and sidewalk designed to Station 25+00. Template laid on

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Engineering and Contracts Division (continued)

ESR No.	Title and Remarks
	X-sections. Sidewalk computations to residences being made. 55% complete.
	(b) Van Giesen Street: Design approximately 85% complete.
	(c) Symons Street: Design started.
	(d) Swift Boulevard: Topog work completed.
	(e) Wilson Street: Topog work completed.
429-CH	Prefab Shower Stalls: 90% complete. Letter sent to C. W. Weeks 1-9-51 outling costs. This project is being combined with C-363, Prefab Rehabilitation.
443-SS	Repair of Exterior Steps and Platform--700 Area Buildings: 85% complete. Project proposal in rough draft circulated 2-28-51.
458-SS	Floors, Foundations, Load Factors in 700 Area Buildings: 20% complete. Work progressing.
459-SS	Study of Removal of Huts 712-A and B: Deferred for other work. Hutment 712-A to be assigned for temporary occupancy.
468-SS	Lighting Study--703 Building: 70% complete. Re-estimating for new proposal.
473-PR	Park Development--1951:
	(a) Cross sections and grade stakes for sidewalk at Library.
	(b) Site grading plan for library in process. Partial planting plans developed for Richland Public Library, south elevation, and for Robordeau Playground.
	(c) Preliminary studies started for installation of irrigation systems, site grading and lawn seeding of the following areas:
	1. Area around Library 2. Riverside Park 3. Columbia Playfield 4. Chief Joseph Junior High School
474-PR	Heating System--1125 Warehouse: 90% complete. Awaiting instructions.
476-RC	Seattle First National Bank Heating: 90% complete. Letter of recommendation sent to M. L. Blum 11-29-50.
483-RH	Rehabilitation of Prefab at 1313 Potter: 90% complete. Plans and specifications complete.

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Engineering and Contracts Division (continued)

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ESR No.	Title and Remarks
484-SS	Sprinkler and Fire Alarm System--703 Building: 85% complete. Recommendation report in rough draft.
485-RM	Exterior Painting of Houses: 99% complete. Complete specifications to be issued approximately 3-7-51. D. F. Shaw's letter to L. F. Huck approved work to proceed without project proposal.
486-RM	Relocation of Partitions in Housing Office: 90% complete. Design complete.
490-RM	Ranch House Roofs: 95% complete. Report transmitted to C. W. Weeks 2-12-51. Awaiting further instructions.
491-PR	Improvement of Lighting--Community House: 100% complete. Letter sent to C. F. Barnes 2-27-51 regarding three possible methods of lighting.
492-MF	New Central Fire Station: Engineering and design 2% complete. Budget funds not definitely allocated.
500-RM	Exterior House Painting--Divisions II, III and Ranch Houses: Specifications being prepared.
508-RM	Prefab Rehabilitation: Comparison cost estimate data sheet prepared for use in establishing scope of work. 30% complete.
509-MS	Fire Prevention Protection Survey, Dorms M-9 to M-14: 10% complete. Work progressing.
515-RM	Survey and Plat--Richland, Washington: Letter sent to R. H. Hopkins outlining proposed scope of work and cost estimate. Held in abeyance pending further instructions from Mr. Hopkins.
520-RC	Proposed Veterinary Site: Deferred for other work.
524-SS	Addition to 721 Building: 1% complete. Work started. Preliminary investigation only.
525-SS	Remove Building 720 and 720 Hutmen: 5% complete. Work started on preliminary investigation only.
526-SS	Floor Covering for All Permanent Buildings--700 Area: Deferred for other work.
527-SS	Permanent Lighting--700 Area Permanent Buildings: Deferred for other work.
528-SS	Replacement of Hutment 705 with Permanent Structure: Deferred for other work.
529-SS	Remodeling 722-C Building for Use as Office Machine Repair Shop: Deferred for other work.

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Engineering and Contracts Division (continued) DECLASSIFIED

Private Construction Progress Report (Plans were reviewed and regular field inspections were made in compliance with building permit requirements.)

Catholic Church Site: Awaiting information.

Reorganized LDS Church: Construction started 8-22-49. All work progressing slowly.

Northwest United Protestant Church: Construction started 9-25-50. Work progressing.

Westside United Protestant Church: Construction started 12-26-50. Work progressing.

Assembly of God Church: Construction started 5-23-50. Work temporarily held up.

First Baptist Church: Construction started 2-24-51.

Episcopal Church: Awaiting information.

Redeemer Lutheran Church: Construction started 8-21-50. Work progressing.

Central United Protestant Church: Awaiting information.

Christian Science Society: Awaiting information.

Richland Laundry and Cleaners Addition: Construction started 9-22-50. Work temporarily held up.

Masonic Temple Addition: Construction started 8-11-50. Work progressing.

Outdoor Roller Rink: Construction started 9-1-50. Work temporarily held up.

Free Methodist Church: Awaiting information.

Richland Lutheran Church Front Addition: Awaiting information.

Richland Investment Company Building: Construction started 12-8-50. Work progressing.

Status of "C" Type Projects (Over $20,000) is as follows:

C-203 Part III — Water Supply and Sewage Facilities, Richland and North Richland Construction Camp: Work continuing on project completion report.

C-232 Part 2R — Carmichael Junior High School: Work completed except lowering of heads and spot seeding where area has blown out.

C-282-R — Grass Seeding--Columbia Playfield: Work will be resumed approximately 3-15-51.

C-351 — Irrigation of Public Grounds:

(a) Frankfort Playground: Irrigation system completed. Final acceptance will be made as soon as grass stand is established.

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Engineering and Contracts Division (continued)

C-351 (continued)

(b) Columbia Playfield: Irrigation system complete except for lowering of heads and small area around pump house.

(c) Riverside Park: Irrigation system complete and ready for final testing and acceptance.

(d) Marcus Whitman Grade School: Irrigation system complete, ready for final testing and lowering of heads.

C-356 Restrooms--Memorial Softball Park: Bids were opened 2-20-51; recommendation for award submitted 2-21-51; subcontract documents are in the process of being approved at the present time. Subcontract work should start approximately 4-2-51.

C-356-R Columbia Playfield Lighting System: Recommendation of award was submitted to the AEC on 2-15-51 and approved 2-27-51. Subcontract documents have been submitted for approval and "notice to proceed" should be given approximately 3-26-51.

C-357 Additional Capacity--Sewage Lift Station: Notice to proceed issued to E. P. Erwen February 7, 1951. Construction held up pending receipt of equipment. Work is to be completed by 7-7-51.

C-363 Rehabilitation of Prefabs: 45% complete. Cost estimate chart prepared for guide in determining scope of modifications to present work scope.

C-372 Exterior Painting of Houses: Work suspended until April, 1951.

C-373 Roof Replacement--South Storage Reservoir: Cancelled 2-2-51.

C-374 Casey Street Improvement: Complete except for restoring of lawns to start when weather is favorable.

C-375 Site Development--Clubs and Organizations: Cancelled per directive modification #1 dated 2-9-51.

C-382 Well 1100-D, Duke Well Field: Second 20" well drilling and testing completed 2-7-51. Approval of contract suspension was given by the AEC for an indefinite period to allow for the delivery of a 2000 gpm pump.

C-387 Interior Painting--16 Dormitories: Notice to proceed issued 2-12-51. Subcontractor to start work 3-1-51.

C-400 Re-roofing, Painting, Siding--700 Area Buildings: Subcontract awarded to Roof Service, Inc., Seattle, and notice to proceed given 2-6-51. Material for the work has been ordered by the subcontractor. The directive authorizing the work under this project has been modified to allow substitution of asbestos siding instead of paint for Building 705.

C-407 Bathtub, Tileboard & Linoleum Installation: Bid opening set for 4-3-51.

C-408 Additional Erosion & Shelterbelt Planting: Design work complete. Specifications have been reviewed and are ready for final printing.

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Engineering and Contracts Division (continued)

The status of "S" projects ($5,000 to $20,000) is as follows:

S-244 Irrigation Ditch Fence--Wright to Van Giesen: Bid opening will be held approximately 4-19-51.

S-255-A Levee Irrigation--Newton Street to Gowan: Work completed and completion notices sent forward.

S-255-B Grass Seeding--Marcus Whitman and Frankfort Playground: Lawn seeding at Frankfort Playground to be resumed in the Spring of 1951. Site grading at Marcus Whitman in progress--approximately 5% of area seeded.

S-255-D Parking Lot at Columbia Playfield: Completion awaiting favorable weather.

S-299 Radio Communication System for Fire Division: Contract awaiting signatures.

S-311 Alterations to Building 722-A: Construction completion notice issued 2-14-51.

S-321 Steam Pits--Dormitories: Release obtained from Real Estate Division 2-28-51 to proceed with the required work.

S-333 Air Conditioning Dormitories: Letter dated 2-7-51 to AEC requests extension of completion date to 3-15-51. 90% complete. General Electric connecting fire alarm interlocks.

S-350 Improvement of Lighting in 705 Building: Work request issued. Waiting material.

S-362 Water Service Alterations--Prefabs: Construction started 1-22-51. 90% complete.

S-366 Exterior Painting of Kadlec Hospital & Municipal Buildings: Bid opening scheduled 3-14-51.

S-379 Interior Painting--Prefabs: Work authorized by M. T. Binns 2-26-51.

S-405-B Additional Erosion Control--Street Trees: During the month, 129 trees were planted on 14 different streets. Work has been retarded by cold weather and low man power. Total trees planted to date 806.

S-450 Fencing Riverside Park: AEC informal approval #81 approved 2-12-51.

S-469 Site Preparation--703 Building: Change in scope awaiting estimate from V. D. Nixon.

S-477 Relocation of Access Panels—U & V Houses: AEC informal approval #78 approved 2-12-51.

S-485 Exterior Painting--Houses: Work authorized 2-6-51 by M. T. Binns.

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Engineering and Contracts Division (continued)

The status of "L" projects ($2,000 to $5,000) is as follows:

L-307 Guthrie-Williams 8" Water Line: Field release #1 issued 2-5-51.

L-330 Install New Oil Burners in "T" Houses: Preparing specifications.

L-406 Installation of Cyclone Fence Around Barth Playlot: Bid opening will be held approximately 3-14-51.

L-483 Fire Damage Repair--Prefab 1313 Potter: Plans and specifications 95% complete.

L-512 Humphreys Street 8" Water Main--Wright to Winslow: Job 80% complete in field.

The status of "K" projects (under $2,000) is as follows:

K-430 Painting of Catholic and Protestant Churches: Bid opening scheduled 3-14-51.

K-480 Service Drive--Uptown Theater: Construction completion notice issued 2-2-51.

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MUNICIPAL DIVISIONS

SUMMARY

FEBRUARY, 1951

ORGANIZATION AND PERSONNEL:

	BEGINNING OF MONTH		END OF MONTH	
	Exempt	Non-Exempt	Exempt	Non-Exempt
Fire	54	1	53	1
Parks & Recreation	13	21	13	20
Police	16	28	16	25
Public Works	19	84	19	85
Public Safety	2	1	2	1
	104	135	103	132

The Richland Community Council was conducted on a tour of Municipal facilities on February 23, 1951. The itinerary for the day was as follows:

9 - 10 AM	Discussion of tour and review of Municipal organization.
10 - 11 AM	Tour of Parks and Recreation Facilities, including Library and Community House.
11 - 11:30 AM	Tour of Central Fire Station.
11:30 - 12 Noon	Tour of Police Headquarters.
12 Noon	Lunch at Desert Inn.
1:30 - 3:30 PM	Tour of Public Works Facilities.
3:30 - 4:30 PM	Question & Answer Period.

The project proposals for Fiscal Year 1951, "Park Development Program, Richland, Washington" and "Additions And Alterations To Existing Street And Additional Sidewalk, Curb And Gutter Construction" were approved by the Plant A & B Committee on February 5, 1951.

R. H. Hopkins and L. F. Huck were in Richmond, California on February 7 & 8, 1951, to discuss with Wayne Thompson, City Manager of Richmond, California, and Richard Graves, Executive Director of the League of California Cities, the feasiblility of combining Municipal Police and Fire operations.

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PUBLIC WORKS DIVISION
MONTHLY REPORT
FEBRUARY 28, 1951

ORGANIZATION AND PERSONNEL

	Present Month	Preceding Month
Number of Employees on Roll:		
Beginning of Month	103	110
New Hires	2	1
Transfers In	1	5
Terminations	1	2
Transfers Out	1	11
End of Month	104	103

GENERAL

The project proposal for Fiscal Year 1951 street and sidewalk construction has been approved by the AEC as submitted, and final design work is now in process. It is anticipated that construction work will commence about July 1, 1951.

Public Works Division employees reported five minor injuries during February, which represents a frequency rate of 1.51.

The Public Works Division participated in the Municipal Divisions' sponsored first annual tour of municipal facilities and improvement sites conducted for the benefit of the Richland Community Council on February 23rd. The afternoon program, following the luncheon meeting, was a caravan tour visiting the installations for Richland's water supply, irrigation and sewerage system. Also visited were locations where work is in progress or is contemplated in improvements or developments relating to streets, erosion control, and garbage collection and disposal.

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Municipal - Public Works

SANITATION

Collection and disposal of garbage and trash was carried on according to schedule and without incident. Total personnel required for this operation was reduced by two employees through the discontinuance of several minor services which were not directly related to a normal waste removal operation.

Total weight of garbage and trash collected during February was 841 tons, as compared to 990 tons in January.

EROSION CONTROL

Landscaping at the Sewage Treatment Plant was started this month with the planting of 36 large arborvitae, which were removed from the old Richland Nursery on George Washington Way. Approximately 20 more evergreens are to be set at the treatment plant to complete the beautification of this site as included in the scope of Project C-408.

A total of 124 new street trees were set in during the month, and replacements for street trees which perished during the last few years were planted at 222 locations throughout Richland.

The setting of 75 leaf trees and 25 evergreens at the Duane Shelterbelt, which was performed this month, completes all necessary replacement at this belt.

ROADS AND STREETS

A fall of approximately 3" of snow on February 2, 1951, necessitated the spreading of sand on streets to minimize the skidding hazard, and both hydraulic spreaders were worked on an overtime basis until conditions were under control. The downtown sidewalks, which are the responsibility of the Public Works Division were cleared of snow through use of a tractor-mounted power broom.

Flasher beacons have been installed on the "Truck Restrictions" signs at the approaches to the Bailey Bridge. These flashers are the property of the State Highway Department and are to be returned when the new bridge has been completed.

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ROADS AND STREETS (CONTINUED)

Four-sided signs indicating, "right turn permitted on red light", have been installed on all traffic signals in the city. A total of 30 street marker signs and 50 traffic control signs were repaired and replaced, and approximately 1,000 feet of curb on Stevens Drive and Long Avenue were painted and stencilled to indicate, "No Parking".

Delivery of the pedestrian-operated traffic signal, which will be installed at the Recreation Hall cross-walk is anticipated during the early part of April, and installation will commence as soon as possible thereafter.

Routine maintenance of streets, sidewalks, and storm drainage systems, and street sweeping have been carried on as required.

DOMESTIC WATER

Normal operations were continued during February, and average daily water consumption was 4.94 million gallons. This daily consumption is approximately .1 million gallons higher than the January daily average, and is due to increased demands of the 300 and 3000 Areas, since the Richland consumption has decreased slightly.

Overhaul of No. 5 well was completed this month, and it has been returned to service. The completion of overhaul of Nos. 15 and 18 Wells has been delayed due to procurement of spare parts, and these are the only remaining Richland Field wells scheduled for overhaul this year that have not now been completed.

Wells 3000-A, B, and D have been overhauled and are scheduled for return to availability on March 5, 1951, at which time overhaul of motors for these wells will have been finished. Wells 3000-A, E, and 5 are scheduled for overhaul during March, and this will complete all scheduled work on the North Richland Well Field.

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Municipal - Public Works

DOMESTIC WATER (CONTINUED)

The new 20" well at Duke Field has been test-pumped and indications are that it will yield 1,500 to 1,800 g.p.m. when recharged through a percolation basin. A 2,000 g.p.m. pump has been ordered and delivery has been promised for March 20, 1951. It is anticipated that this well will be equipped and tied to the water system prior to the high consumption season.

Domestic Water System

	Well Production Million Gallons	Avg. Daily Production	Total Consumption Million Gallons	Avg. Daily Consumption
Richland	77.2564	2.7592	71.9287	1.8356
North Richland	34.2483	1.2232	43.9320	2.3023
Columbia Field	26.9223	0.9615		
300 Area			22.4254	0.8009
Totals	138.4270	4.9439	138.2861	4.9388

SEWERAGE SYSTEM

Routine operation of the treatment plants was carried on during February. Cleaning and regrading of the effluent ditch has been completed, with the cost of regrading being charged to the AEC, since it was necessitated by the grades established at the new Corps of Engineers Pumphouse.

A 45-minute power outage occurred at the Sewage Lift Station on February 14, 1951, and the gasoline pump was unable to handle the entire volume, since it was during a peak flow period. As a result, a small amount of sewage spilled through the emergency out-fall pipe into the Columbia River.

Dissolved oxygen tests have been continued on the sewage flowing in the North Richland trunk sewer, but final determination as to the best method for correction of the septic condition in this line has not been made. Corrective action will be taken as soon as this study is complete.

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Municipal - Public Works

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SEWERAGE SYSTEM (CONTINUED)

Inspection of sewer manholes was continued toward the end that stoppages may be minimized.

Sewerage

	Total Sewage Flow Million Gallons	Average Daily Flow Million G.P.D.	Average Rate Flow Gals. Per Min.
Plant No. 1	29.530	1.056	732
Plant No. 2	60.677	2.167	1.505
Totals	90.207	3.223	2,237

IRRIGATION SYSTEM

Cleaning and repair of the supply canals is virtually complete, and water will be turned into the canal from Horn Rapids Dam to the "penstock", and thence, to the North Richland Well Field percolation basin on March 15, 1951. On April 1st, water will be turned into the canal from the "penstock" to the Richland Well Field Percolation Basin.

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MONTHLY REPORT
PARKS AND RECREATION DIVISION
February, 1951

ORGANIZATION AND PERSONNEL

	February	January
Beginning of month	34	34
New Hires	5	4
Terminations	5	1
Transfers - IN	0	1
OUT	1	4
	33	34

SCHOOLS

The following is a tabulation of full-time paid School District #400 personnel as of February 28, 1951:

Administration	6
Principals & Supervisors	15
Clerical	23
Teachers	247
Health Audiometer	1
Building Custodians	43
Cooks	39
Nursery School and Extended Day Care	11
Bus Drivers	2
Farm Manager	1
	388

CLUBS AND ORGANIZATIONS

As of February 28, 1951, organizations' personnel, exclusive of those included in the Real Estate-Commercial Facilities Division report, include:

Youth Council - Chest	1
Boy Scouts	1
Camp Fire Girls	2
Hi-Spot Club	2
Girl Scouts	2
Justice of the Peace	1
Y.W.C.A.	2
	11

The Parks and Recreation Board held it's monthly meeting on Thursday, February 8, 1951, in the lobby of Building W-20. The policies and procedures as proposed by the Recreation Division regarding the operation of the Community House were approved by the Board.

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Parks and Recreation Division

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On February 2, 1951, a breakdown of March of Dimes Funds collected in the January 31, 1951, "Mothers March on Polio" was released as follows: Marcus Whitman, $587.40; Sacajawea, $656.03; Jefferson, $621.11; Spalding, $685.65; Lewis and Clark, $612.91; and John Ball, $580.26, to total $3,744.46. The "Mothers March on Polio" event boosted the total to about $5,909.00.

On Saturday, February 3, 1951, the Richland Community Council and School Board elections were held in Richland. Two Councilmen-at-Large and two District Councilmen were elected in the Richland Community Council election, and one School Board member was elected in the School Board election. The Parks and Recreation Division assisted in the canvassing for election officials to work on the election boards during the election. The Park Maintenance Section delivered all necessary election materials used during the election to each voting place and picked up same after the election. One supervisor from the Parks and Recreation Division was on duty throughout the election day to assist as needed during the election.

The Policeman's Ball was held on Friday, February 16, in the girls gym at the Columbia High School. Approximately 500 persons attended this affair.

On Sunday, February 25, 1951, the Richland Symphony Orchestra presented a concert at the Carmichael Junior High School. Mr. Karl C. Deittrich was guest conductor.

On February 27, 1951, the Broadway Clowns Basketball Club played the Richland All-Stars at the Columbia High School.

The number and types of organizations presently served by the Parks and Recreation Division include:

Business and Professional Clubs		20
Churches and Church Organizations		27
Civic Organizations		5
Fraternal Organizations		24
Music and Art Associations		8
Recreation and Hobby Groups		44
School & Parent Teachers Associations		13
Social Clubs and Organizations		11
Veteran & Military Organizations		12
Welfare		6
Youth	Boy Scouts	20
	Camp Fire Girls	36
	Girl Scouts	49
	Miscellaneous	10
Miscellaneous		9
		294

RECREATION

On February 14, 1951 the supervisor in charge of organizations and records assigned to the Recreation Division terminated to enter the Army Air Force. He was replaced by a supervisor transferred from the Parks Division.

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Parks and Recreation Division

A Playground Supervisor was hired as replacement for Mr. A. H. Saunders who terminated on February 9, 1951. The new Playground Supervisor reported to work February 13, 1951.

Renovations to the Community House were about 98% completed during February. Work is continuing on the cleanup of the dining room by the Park Maintenance crews.

A transfer of work duties were made to the Community House staff including scheduling of all facilities of the Parks and Recreation Division, such as ball diamonds, picnic facilities, Burlin Camp and available rooms at the Community House.

A meeting was held on Wednesday, February 21, 1951, and a tour made of the Community House with representatives of the High School composed of the boys and girls advisors and Mr. McIntosh, the principal, to coordinate the activities planning of the two agencies.

A survey of softball and baseball diamonds was made on Tuesday, February 27, by the Recreation Division to determine the number of diamonds available for scheduling during the 1951 season. The survey showed only 16 ball fields during the season. Arrangements were being made to make an emergency baseball field on the Columbia Playfield for use by the High School during the baseball season.

Attendance figures for the month of February were as follows:

Community House	Boys	Girls	Total	Sub-Total
Games Room (25 days)	2157	466	2623	
Marionettes (3 sessions)	41	35	76	
Juvenile Art (4 sessions)	33	44	77	
Metal Tooling (3 sessions)	37	31	68	
Open Craft (4 sessions)	40	46	86	
Fly Tying (2 sessions)	30	1	31	
Dramatics (4 sessions)	29	31	60	
	2367	654	3021	3,021
Servicemen's Center (4 sessions)	Men - 374		Women - 175	549
Spalding Program				
Badminton (3 sessions)			67	
Co-Recreation (4 sessions)			75	
Men's Recreation (4 sessions)			96	
Weightlifting (5 sessions)			72	
Women's Recreation (1 session)			12	
Fencing (2 sessions)			10	
			332	332

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Columbia High School	Boys	Girls	Total	Sub-Total
Minnesingers Boys Chorus (3 sessions)	222		222	
Jr. Archery Instruction (1 session)	24	1	25	
	246	1	247	247
Adult Archery Instruction (6 sessions)	Men - 84		Women - 12	96

Lewis & Clark School - Square Dancing

	(Adult) Spectators				
2/3/51	10	53	80	Elementary	
	16	41	74	Junior High	
2/10/51	4	41	79	Elementary	
	10	7	11	Junior High	
2/17/51	12	61	83	Elementary	
	17	3	7	Junior High	
2/24/51	9	73	81	Elementary	
	20	35	44	Junior High	
	98	314	459		871

Hoop Shoot Tournament

Marcus Whitman School	59	32	91	
Lewis & Clark School	60	23	83	
Spalding School	40	20	60	
Jefferson School	58	26	84	
Sacajawea School	62	32	94	
Carmichael School	259	138	397	
Columbia High School	141	75	216	
	679	346	1025	1,025
		GRAND TOTAL		6,141

PARK MAINTENANCE

Work continued on Project S-255B for soil preparation and seeding of the unturfed area at Marcus Whitman Playground. Man hours expended on this project during February were 166.

Work on Project S-45-B, street trees, continued with limited planting along streets bordering parks and playgrounds. This work now curtailed due to shortage of nursery stock.

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Parks and Recreation Division

General repair of all project irrigation hoses and sprinklers was completed during the month and all equipment is in a workable condition for the 1951 season.

The site preparation of Townsend Court Playlot was completed, with the exception of seeding, during the month.

Fertilizing of all parks and playgrounds areas started during February and are to be completed by March 15, 1951.

Ten work orders were issued during February.

Proposed Work	Percentage Completed
1. Site Development	
a. Columbia Playfield (Project #1-255)	85%
b. Marcus Whitman Playground (Project #S-255-B)	20%
2. Irrigation Installation	
a. Riverside Park (Project #C351)	98%
b. Columbia Playfield (Project #C351)	80%
c. Carmichale Playground (Project #C376)	95%
d. Marcus Whitman Playground (Project #C351)	85%
e. Frankfort Playground (Project #C351)	98%
3. Grass Seeding	
a. Carmichael Playground (Project #332)	90%
b. Frankfort Playground (Project #255B)	90%
4. Parking Lot	
a. Columbia Playfield (Project #255D)	92%
5. Playground Equipment	
a. Equipment installed (Project #356R)	15%

LIBRARY

The Reference Librarian reported to work at the beginning of the month which completed the Library staff except for the Cataloger-Order Librarian.

One General Clerk terminated and one Steno-Typist transferred out of the Division during the month. Both positions have been filled.

Final acceptance of the Library building is still pending the completion of the heating system, but the remainder of the building has been turned over to the Company.

Approximately one-half of the adult books ordered have been received and processing has begun on these volumes. To date about one-fourth of the children's books ordered have been received.

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Parks and Recreation

Arrangements have been made to hold the first exhibit of a collection of Northwest Painters in the North Hall of the Library building March 1, to 15.

The Library Board met February 7, 1951, to discuss matters pertaining to the Library and voted to recommend an increase in the amount of money allowed for books for the 1951-52 budget period.

MAJOR ACTIVITIES DURING THE MONTH

February 3	- Richland Community Council and School Brd. Election	Community
11	- Concordia Choir	Carmichael
16	- Policemen's Ball	Columbia
17	- Community Concert - Edwin Steffe, Baritone	Carmichael
25	- Richland Symphony Orchestra Concert	Carmichael
27	- Broadway Clowns, vs. Richland All-Stars, Basketball	Columbia

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MUNICIPAL DIVISIONS

RICHLAND FIRE

February 1951

ORGANIZATION AND PERSONNEL

	Present Month	Previous Month
Number of Employees on Roll		
Beginning of the Month	55	58
New Hires	0	0
Terminations	0	1
Transfers In	0	0
Transfers Out	1	1
Leave of Absence	0	1
	54	55

FIRE PROTECTION

Response To Alarms		18	23
Fire Loss (Estimated)	Hanford Works	$39.34	$ 695.80
	Personal	0.00	511.50
		$39.34*	$1207.30

* Richland only. Not included is $470 estimated fire loss sustained in two rural fires.

Investigation of Minor Fires and Incidents	9	17
Safety Meetings	8	8
Security Meetings	4	4
Inside Drills and Schools	47	60
Outside Drills	48	25
Fire Alarm Boxes Tested	184	183

Hose replaced in a 700 Area fire hose box.

Two teachers and twenty students of Lewis and Clark School visited Fire Station No. 1 for conducted tour of station and explanation of firefighting facilities.

Community Council was conducted through Fire Station No. 1 on February 23rd.

Seven Fire Department officers attended the HOBSO training sessions.

One additional master fire alarm box was installed at the west side of Building 712 and connected to the public alarm system. This box also serves the auxiliary alarm system in the 712 Building.

Grass fire truck stood by on February 27th and 28th during controlled burning on Wellsian Way.

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RICHLAND FIRE February 1951

FIRE PREVENTION

Fire Inspections:	
700 Area Buildings	54
1100 Area Buildings	43
Real Estate Buildings	24
Municipal Buildings	13
AEC Airport Buildings	12
Schools	1
Miscellaneous Inspections	39
Total	186

Fire Extinguishers:	
Inspected	446
Installed	4
Refilled	7
Relocated	3

Fire Hazard Reports Submitted:

700 Area	7	Real Estate	17
1100 Area	2	Municipal	4
AEC Airport	1	General Services	1

Total of 236 manhours and devoted to fire prevention work in buildings occupied by the operating divisions.

Assistant Fire Marshal attended HOBSO sessions.

Record of year-round fire prevention activities added to Fire Prevention Week scrap book and submitted to Richland Chamber of Commerce for shipment to U. S. Chamber of Commerce Fire Prevention Contest office.

Two meetings held with Plant Fire and Safety Division supervision relative to inspection and servicing of gas masks in Richland area. As a result of these meetings, the Fire Department is to continue sterilizing and servicing masks, but divisions using masks will bring them to the fire station for servicing.

Fire Marshal's staff held a safety meeting to review job hazards.

Relocation and addition of fire hose standpipes in renovated Recreation Hall recommended to Engineering, Municipal and Real Estate Divisions. Arranged for hose adapters to facilitate use of fire hose from Fire Marshal stock.

Recommendations made for repair and modification of attic draft-stop doors in Recreation Hall, 760, 761 and 762 Buildings. Most of these doors are inoperative and sub-standard.

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RICHLAND FIRE February 1951

Submitted recommendation and cost estimate for installation of heat detection and auxiliary alarm system in 713 Building, utilizing equipment from 712-B, now scheduled to be removed.

Assisted the Real Estate Division prepare an evacuation procedure for the Municipal Division.

Requested the Real Estate Division to investigate gasoline fumes at 1303-1305 Perkins. When it was found that gasoline was being used in a washing machine, the tenant was warned of the fire and explosion dangers.

School maintenance supervisor contacted regarding reported failure of evacuation horns in Columbia High School.

Maintenance and Telephone supervision requested to take steps to prevent accumulations of scrap material in attics and Plant Safety requested to issue bulletin on this subject and smoking in attics.

Minor changes and additions were submitted for the Fire Prevention Code now being considered by the Richland Community Council.

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MUNICIPAL DIVISIONS

RICHLAND POLICE DEPARTMENT

FEBRUARY, 1951

ORGANIZATION AND PERSONNEL

Number of Employees on Roll:	Preceding Month	This Month
Beginning of Month	45	44
New Hires	0	1
Terminations	0	0
Transfers in	0	0
Transfers out	1	4
End of Month	44	41

GENERAL

On February 1, 1951, Capt. J. S. Johnson, Sgt. H. V. Meigs, and Sgt. G. A. Mumper spoke before the Boys Student Body at the Carmichael Junior High School on problems concerning juveniles in our locality.

On February 6, 1951, a new telephone relay setup was installed at the Desk Sergeant's office to replace the two desk phones, 5-2001 and 5-3281, formerly used. The new setup consists of three phones, but only one number, 4-2232, is listed. Any calls made on 4-2232 will automatically be relayed to 4-2233 or 4-2234 if the first number called is in use. The department is now in a position to render better service to the public by having more lines to Headquarters.

On February 16, 1951, the first annual Policeman's Ball was held in the Columbia High School gymnasium for the purpose of raising money to organize a Little League baseball team to be known as The Pals and to be sponsored by the Police Athletic League. It was estimated that 300 persons attended the affair.

On February 19, 1951, notification was received from Governor Arthur B. Langlie that Richland had tied with Walla Walla for first place in the 20,000 to 50,000 population class of the Governor's Traffic Safety Contest. The award is based upon the number of traffic fatalities per 100,000 population and will be presented at a ceremony later.

Mr. Robert E. Raleigh, Director of Field Service, Traffic Division, International Association of Chiefs of Police, was in Richland for three days beginning February 19 at the request of the A. E. C. Safety Division on a consultant basis. His primary purpose here was to make recommendations relative to a proposed consolidation of the fire and police functions. A copy of his recommendations to the A. E. C. is retained in our files.

The Community Council made a tour of Police Headquarters on February 23, 1951, in connection with the overall tour of Municipal Divisions.

A phone for police use has been installed in the uptown business district on a pole in back of the Davis Furniture Store. This phone is used primarily to recall the

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patrolman from foot patrol duty in the uptown business district and also to provide the patrolman stationed there with a constant means of communication with headquarters.

During the month, a total of 192 letters were received, compared to 197 last month. These consisted of 180 inquiries on arrests and 12 requests for assistance.

During the month, 28 prisoners were processed through the Richland Jail. Sixteen of these were from North Richland.

During the month, 17 gun registrations were recorded.

During the month, 72 bicycle registrations were recorded.

TRAFFIC

The Traffic Section recorded 16 reportable accidents for Richland for the month of February, 1951. This amount shows a reduction of four over the preceding month and a reduction of two for the same month last year. No fatal accidents occurred within the city and only three persons were injured, of which the injuries were of minor nature. This amounts to a reduction of five injuries over last month.

Causes of the sixteen accidents were: nine negligent driving, two following too close, two failure to yield right of way, improper backing two, and one disregard for traffic signal.

Total property damage was $3,700.00. Property damage caused by traffic accidents decreased from an average of $275.00 per accident for last month to an average of $231.00 per accident this month.

Traffic safety meetings with the School Boy Patrol were conducted at two of the grade schools during the month of February by Ptm. D. F. Metz. New uniform equipment consisting of 68 new caps and 36 new belts was placed on order so as to better equip the School Boy Patrol at the various schools. Daily checks were made during the month to observe the work of the School Boy Patrol at the various schools. Also, daily patrols were made in and around the Columbia High School to check for speeding and erratic driving of the students attending the school.

Four "No Parking" signs were placed along the east side of Stevens Drive opposite the Catholic Church, and the curbing was painted yellow from that point to Williams Boulevard. Parking was eliminated along the east side of Stevens Drive to eliminate traffic hazards by the street being too narrow to permit safe parking and a safe flow of traffic. The curbing along the west side of Stevens Drive was also painted yellow from Williams Boulevard to Roberdeau Street to eliminate parking for the same reason as mentioned above. A cross-walk was painted at the intersection of Long Avenue and Stevens Drive to permit safe crossing of the streets for the heavy, Sunday, pedestrian traffic on their way to and from the church.

A "No Parking" area was zoned off by painting an area within the parking lot just south of the Uptown Theatre where the bicycle racks have been placed in the lot.

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Richland Police Department - Continued

Approximately 38 traffic signs were repaired and replaced throughout the city. Eighteen new metal street marker signs were installed replacing the old ones which were in bad repair. Four traffic signs were replaced at the rear of the Sacajawea Grade School to eliminate parking in the driveway and at the rear of the school.

A survey was made of the traffic signals on Goethals Drive and George Washington Way, and it was determined that the lights should be re-timed for a faster through movement of traffic. Orders have been issued for the re-timing of the lights.

TRAINING

Subjects covered in the lieutenant's training classes for the month were as follows:

Force and Resistance	Confinement and Imprisonment
Jail Duties	Search
Modus Operandi of Burglars	Rules of Evidence
Crime and Accident Scenes	Preservation of Evidence
Arrest of Drunks	

Advance training at the small arms range for the period in field instruction was as follows:

Pistol 2 hours

Qualifications on the Army-L Course were as follows:

Score	No. Men	Per Cent
Expert	1	50%
Unqualified	1	50%

A total of two men reported to the Range for training.

ACTIVITIES AND SERVICES

	December	January	February
Doors & windows found open	53	39	27
Children lost or found	9	12	6
Ambulance runs assisted	25	29	30
Ambulance driver provided	2	2	2
Dogs, cats reported lost or found	13	9	9
Dog, cat, loose stock complaints	47	25	15
Persons injured by dogs	4	5	11
Bank escorts & details	35	40	19
Fires investigated	15	26	20
Miscellaneous escorts	35	19	21
Complaints investigated	28	35	48
Deaths reported	2	2	1
Articles lost or found	37	31	39
Records inquiries	112	319	280
Law Enforcement agencies assisted		14	6
Private individuals assisted		10	16
Plant divisions assisted		24	14
Emergency messages delivered		58	67
Totals	417	699	631

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MONTHLY REPORT
RICHLAND POLICE DEPARTMENT
FEBRUARY, 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 Assault	0	0	0	0
5. Burglary--Break & Ent.	4	1	2	1
6. Larceny--Over $50.00	2	0	1	4
Larceny--Under $50.00	20	1	7	2
Bike Theft	27	0	0	27
7. Auto Theft	2	1	0	1
TOTAL PART I CASES	55	3	10	35
PART II				
8. Other Assaults	2	0	2	0
9. Forgery & Counterfeit.	0	0	0	0
10. Embezzlement & Fraud	0	0	0	0
11. Stolen Prop:Buy:Rec:Poss:	0	0	0	0
12. Weapons:Carry:poss:	0	0	0	0
13. Prostitution	0	0	0	0
14. Sex Offense	3	0	3	0
15. Offense Ag.Fam. & Child.	2	0	1	1
16. Narcotics--Drug Laws	0	0	0	0
17. Liquor Laws	0	0	0	0
18. Drunkenness	14	0	9	5
19. Disorderly Conduct	8	0	3	5
20. Vagrancy	0	0	0	0
21. Gambling	0	0	0	0
22. Driving While Intox.	0	0	0	0
23. Violation Rd. & Dr.Laws:				
Speeding	24	0	24	0
Stop Sign	13	0	13	0
Reckless Driving	4	0	4	0
Right of Way	0	0	0	0
Negligent Driving	15	0	15	0
Defective Equipment	4	0	2	2
24. Parking	81	0	26	55
25. All other Traffic	30	0	30	0
26. All Other Offenses:				
Public Nuisance	4	0	4	0
Dest. of Pers. Prop.	2	0	0	1
Malicious Mischief	9	0	4	5
Vandalism	9	0	1	7
Dog Nuisance	1	0	0	1
Car Prowl	2	0	0	2
Illeg. Use of Firearms	2	0	1	1
Investigation	2	0	1	1
Dog Poisoning	1	0	0	0
Prowlers	6	1	0	4
27. Suspicion	0			
TOTAL PART II CASES	238	1	143	90

(Continued on Page Two)

4

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OFFENSES	KNOWN	UNFOUNDED	CLEARED ARREST	CLEARED OTHER*
PART III				
28. Missing Persons	6	0	0	6
Lost Persons	3	0	0	3
Lost Animals	7	0	0	7
Lost Property	1	0	0	1
29. Found Persons	1	0	0	1
Found Animals	4	0	0	4
Found Property	29	0	0	29
TOTAL PART III CASES	51	0	0	51
PART IV				
30. Fatal Mot.Veh.Traf.Acc.	0			
31. Pers. Inj. Mot.Veh.Traf.Acc.	2			
32. Prop.Dam.Mot.Veh.Acc.	14			
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	3	0	0	3
39. Suicides	0			
40. Suicide Attempts	0			
41. Sudden Death & Bodies Fd.	1	0	0	1
42. Sick Cared Fore	12	0	0	12
43. Mental Cases	1	0	0	1
TOTAL PART IV CASES	33	0	0	17
COMPOSITE TOTALS PARTS I,II,III,IV CASES	377	4	153	193

*Cases listed under "Cleared Other" are those cleared by various means other than arrest, such as: orders from prosecutor, juvenile probation officer or other situations in which a mutual agreement is obtained. They are definitely "cleared" cases and differ from the arrest column only in that there were no arrests.

Property Reported Stolen During Month $1,110.00 (Bikes $810.00)
Property Recovered During Month (Bikes $810.00)

SEE PAGE THREE FOR JUVENILES INVOLVED.

OFFENSES OCCURRED IN 1950 BUT CLEARED THIS MONTH:

Grand Larceny--------2 Cases
Petit Larceny--------4 "
Car Prowl----------1 "
Brkg. & Ent.---------1 "
Vandalism----------2 "

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RICHLAND POLICE DEPT.
PAGE THREE--FEBRUARY, 1951, MONTHLY REPORT

JUVENILES INVOLVED

OFFENSES	NO.	JUVENILES	SEX	AGES 2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	TOTAL
Breaking & Entering	1	2	M							1	1									2
			F																	
Grand Larceny	1	2	M						2											2
			F																	
Petit Larceny	4	6	M													1	1	3	1	6
			F																	
Disorderly Conduct	2	4	M										1	1			1	1		4
			F																	
Malicious Mischief	4	8	M					1							2					3
			F								1							1	3	5
Illegal Use of Firearms	2	3	M											1		2				3
			F																	
Vandalism	1	6	M											4						4
			F											2						2
TOTALS.....	15	31						1	2	1	2		1	8	2	3	2	5	4	31

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Number of offenses known to police per 25,000 inhabitants in cities of 25,000 persons:

Six Months	Wash. Oregon & Calif. (Jan-June 1950)	One Month Average	Richland (Jan-June 1950)	Richland Jan. 1951	Richland Feb. 1951
Murder	.49	.08	0	0	0
Robbery	14.3	2.3	0	0	0
Agg. Asslt.	10.3	1.7	4	1	0
Burglary	90.6	15.1	12	0	3
Larceny	269.6	44.9	223	23	21
Auto Theft	37.3	6.2	4	2	1
Bike Theft			85	32	27

Number of offenses known to police per 25,000 inhabitants regardless of whether offenses occurred in cities or rural districts:

Six Months	State of Washington (Jan-June 1950)	One Month Average	Richland (Jan-June 1950)	Richland Jan. 1951	Richland Feb. 1951
Murder	.53	.08	0	0	0
Robbery	10.9	1.8	0	0	0
Agg. Asslt.	2.7	.4	4	1	0
Burglary	80.3	13.3	12	0	3
Larceny	236.1	39.3	223	23	21
Auto Theft	30.9	5.1	4	2	1
Bike Theft			85	32	27

The portion of offenses committed by persons under the age of 25 yrs. is shown:

	National Average (Percentage) (Jan-June 1950) (of Cases)	Wash.Oregon.Cal. (Actual) (Jan-June 1950) (Cases)	Richland (Jan-June 1950)	Richland Jan. 1951	Richland Feb. 1951
Robbery	55.4	7.9	0	0	0
Burglary	63.0	57.0	2	0	1
Larceny	46.7	125.9	57	4	5
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."

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8

POLICE DIVISION - TRAFFIC CONTROL STATISTICS
February, 1951

MOTOR VEHICLE ACCIDENTS:

	Total Number		Fatalities		Major Injuries		Minor Injuries	
	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.
Richland	20	16	0	0	1	0	5	2

ACCIDENT CAUSES:

	Negligent Driving		Failure to Yield Right of Way		Reckless & Drunken Driving		Other Causes	
	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.
Richland	6	9	4	2	1	0	9	5

PLANT WARNING TRAFFIC TICKETS ISSUED:

	Speeding		"Stop" Sign		Parking		Imp. License		Def. Equipment		Other Violations		Totals	
	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.
Richland	0	0	0	0	86	55	1	0	0	2	0	0	87	57

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	
	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.	Jan.	Feb.
Richland	22	26	6	13	2	0	1	5	3	0	9	16	14	27	82	23	139	110

TRAFFIC VOLUME: No Traffic Count was taken during Month of February, 1951.

NOTE: Traffic Control Statistics show ORIGINAL CHARGES ONLY.

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RICHLAND POLICE DEPARTMENT
RICHLAND JUSTICE COURT CASES
FEBRUARY 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.	14	5	4			4	1					11	$ 7.50	$ 5.00	$ 5.00
Def. Equip.	2		1			1						2			
Drunken Dr.	1	1								1	1			102.50	
F.T.Y.R.O.W.	1	1									1			7.50	
Ill. Parking	28	19	8				1				2		28.00	66.50	35.00
Ill. Passing	1		1										7.50		
Lic. Plates	14	9	4	1							4	2	20.00	45.00	25.00
Negligent Dr.	16	11	4		1						1		90.00	167.50	35.00
Reckless Dr.	4	1		2		1				1				27.50	
Speeding	26	14	9	2			1				2	2	95.00	140.00	7.50
Stop Sign	13	5	7				1					1	35.00	30.00	12.50
No Registration	2					2						2			
Public Intox.	10	7	2	1									25.00	81.50	37.50
Public Nuis.	4	2	1	1									17.50	35.00	
Resisting Officer	3	3						3							
Third Deg. Assault	2	2						2							
TOTALS:	141	80	41	7	1	8	4	5		2	11	20	$325.50	$708.00	$157.50

NOTE: One Reckless Driving case amended to Negligent Driving

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MUNICIPAL DIVISIONS

PUBLIC SAFETY DIVISION

February 1951

ORGANIZATION AND PERSONNEL

Number of employees on roll:		Preceding month
Beginning of month	3	3
New Hires	0	0
Terminations	0	0
Transfers	0	0
End of month	3	3

STATISTICAL AND GENERAL

The National Safety theme for the month of February "Know and Obey Traffic Laws" has been publicized quite extensively with various newspaper articles, giving a coverage of 120 column inches.

Three radio interviews involving the theme, "Know and Obey Traffic Laws", were tape recorded and broadcast by members of the Richland Safety Council. These safety interviews were entitled "The Law and Speed", "Safety Takes No Holidays", and "Knowledge Is Power". Several spot announcements were sent to the three local radio stations, pertaining to this month's safety theme.

This office assisted in conducting the Community Council in the tour of the Municipal Operations.

A new 24-sheet poster "Wait For the Green Light" was posted the first of the month.

Letters warning residents of construction hazards in the new housing area were sent to 246 residents living nearby, in the interest of child safety.

Richland received announcement of the first place tie with Walla Walla in the Governor's Safety Contest.

Safety films which have been available during the month of February were:

Screw Drivers and Screw Jays
The Safe Driver With Care
It's Wanton Murder
Foot Faults
Fatal Seconds
A Closed Book
Heedless Hurry-Endless Worry

These seven films, which were available to local organizations and civic clubs, had an attendance of 940 during the month.

A representative of this office attended the meeting of the Student-Parent Council in order to give assistance to the schools in their April safety program entitled "Child Pedestrian and Bicycle Safety".

A Compilation of the statistics and the collection of exhibits relative to the National Inventory of Traffic Safety for 1950 will be completed today and ready for mailing March 1st.

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REAL ESTATE DIVISIONS

SUMMARY

JANNUARY

ORGANIZATION AND PERSONNEL:

	BEGINNING OF MONTH		END OF MONTH	
	Exempt	Non-Exempt	Exempt	Non-Exempt
Commercial & Other Property Divisions	7	6	7	5
Housing & Real Estate Maintenance Division	23	181	22	181
	30	187	29	186

Net decrease of employees for the month of February 2

GENERAL

Ten Prefabs that were moved from Columbia Camp were completely renovated and allocated to the Master List in February

Construction work was started on a new building for the First Baptist Church at Richmond Blvd. between Raleigh Street and Putnam Street.

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MUNICIPAL, REAL ESTATE AND GENERAL SERVICES DIVISIONS

HOUSING AND REAL ESTATE MAINTENANCE DIVISION

February, 1951

ORGANIZATION AND PERSONNEL

Number of employees on payroll			February
Beginning of month	23	exempt employees	
	181	non-exempt employees	
	204		204
End of month	22	exempt employees	
	181	non-exempt employees	
	203		203

HANFORD 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	2207	259	8	374	837	1158	58	38	4939
Commercial Facilities	90	8	2	29	71	65	5	5	275
Community Activities	9			1	7	3		1	21
Medical Facilities	6	13		2		1			22
Post Office	7			1	3	10		3	24
A.E.C. and Other Government	96	28		15	40	23	4	4	210
School District	42			5	12	51	1		111
Kellex Corporation	6	5		5	7	2	1		26
Atkinson-Jones	9	15		6	12	4	4		50
Newberry-Neon	3	1		1			1		6
Vernita Orchards								4	4
J. G. Turnbull					1	1			2
Fred J. Early Co.					1				1
V. S. Jenkins					1				1
Total Houses Occupied	2475	329	10	439	992	1318	74	55	5692
Houses assigned - Leases written	9	1		2	4	5			21
Houses assigned - Leases not written	8	3		6	3	7		1	28
Houses available for assignment	8			3	1	12			24
Total Houses	2500	333	10	450	1000	1342	74	56*	5765

* L-947 turned over to the Salvage Department to be sold.

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Housing and Real Estate Maintenance Division

Housing Turnover During Month.	Begin Month	Moved In	Moved Out	Month End	Difference
Conventional Type	2484	23	32	2475	Minus 9
Block Type	331	6	8	329	Minus 2
"T" Type	10	1	1	10	—
Precut Type	447	4	12	439	Minus 8
Ranch Type	993	11	12	992	Minus 1
Prefab Type	1313	39	34	1318	Plus 5
Apartments	71	4	1	74	Plus 3
Tract	56	—	1	55	Minus 1
Total	5705	88	101	5692	Minus 13

Dormitory Statistics

Dormitories:

			Occupants	Vacancies	Total Beds
Men	Occupied	14	566	—	566
Men	Unoccupied				
Women	Occupied	12	**447	*84	531
Women	Unoccupied	1			

Women's Dormitories occupied by:

G. E. Office	2
Education	1
Apartments	1
	31

* This includes 50 beds in Standby Condition in W-17.

** This includes space of 4 beds in W-9 used for supply rooms and dormitory offices.

GENERAL

		Allocation Section Statistics	
Houses Allocated to new tenants	43	Voluntary Terminations	28
Exchanged houses	12	R. O. F.	—
Moves (Within the Village)	17	Discharge	1
Turnovers	8	Transfers	3
Total Leases Signed	88	Retirement	—
Terminations	28	Houses Assigned "As Is"	20
Total Cancellations	101	Move Off Project	16
Applications Pending	505	Houses sent to renovation	50

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Ten Columbia Camp prefabs have been completely renovated and were allocated to the Master List in February.

TENANT RELATIONS

Processing of Service Orders, Work Orders, and Service Charges.

	Orders Incomplete As of Jan. 31, 1951	Orders Issued From 1-31 to 2-28	Total Orders incomplete as of 2-28-51
Service Orders	191	2544	191
Work Orders	4079	888	3790
Service Charges	36	202	21
Renovation Work Orders	13	58	34

Principal Work Order Load

	Incomplete as of Jan. 31, 1951	Incomplete as of February 23, 1951
Laundry tub replacement	121	142
Bathroom Renovation (Tub-Lino-Tile)	283	344(206 Sub-Contract)
Tileboard Only (Bathroom)	29	25
Kitchen Cabinet Linoleum	284	271
Kitchen Floor Linoleum	88	72

MAJOR WORK PROGRAM

Repair to Prefab Foundations	633 Completed	—
Relocation of Prefab Stop and Waste	633 Completed	—

WORK ORDERS COMPLETED DURING THE MONTH OF FEBRUARY

16 Two bedroom prefab Utility rooms were lined with wallboard and linoleum installed.
47 Bathtubs were installed.
99 Linoleum repair jobs were completed
14 Blacktop sidewalks were replaced
25 Steps were repaired with blacktop
11 Basements were waterproofed.
21 Hot water heaters were replaced
13 Parking compounds graded and filled with gravel
44 Touch up paint jobs (interior) were completed
28 Loads of tumble weeds were pick up and disposed of.
10 Loads of top soil were delivered.

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Processing of Service Orders, Work Orders and Service Charges

Alteration Permits Issued during the Month of February totaled 70 compared to 51 in January.

Install molding	1	Automatic washers	12
Basement Excavation	11	Automatic clothes dryer	4
Remove broom closet	1	Refinish floors	1
Reverse range and refer.	3	Driveway	3
Backdoor in prefab	4	Automatic dishwasher	4
Relocate coal bin	2	Electrical wiring	1
Fence	8	Coal furnace to oil	3
Greenhouse	1	Toolshed	2
Water softener	2	Basement partition	2
Patio	1	Trellis	1
Raise cupboard 2"	1	Raise threshold	2

1409 Inspections were made during the month of February as compared to 750 made during January.

Alteration Permits	53	Bathtubs	145
Cupboards	21	Drainage	7
Driving on Grass	2	Floor Boards	16
Grass Seed	1	Jack and Shim	30
Leaking basements	31	Linoleum	292
Lot lines	30	Paint	57
Porch and Steps	32	Screen Doors	48
Shades	58	Shower stalls	31
Sidewalks	28	Sinks	19
Tileboard	139	Toilet seats	7
Top Soil	11	Trailers	1
Walls	35	Windows	34
Cancellations (houses)	21	Renovations	27
New Tenants	6	Miscellaneous	226

MISCELLANEOUS

House freeze-ups, starting January 27, 1951 through and including February 1, 1951.

Prefabs	169
Precuts	65
Conventional	6
A and J	1
Tract	1
Facilities	4
Ranch	1

Note: Freeze ups during the winter of 1949-1950 Totaled 1147

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MAINTENANCE (HOUSING AND REAL PROPERTY) FOR MONTH OF FEBRUARY, 1951

HEAVY MAINTENANCE STATISTICS

	Man-Hour Backlog Non-Routine	Man-Hour Backlog Routine	Craft	Non-Exempt Manpower	Crew Days
	15,524		Carpenters & Upholsterer	55	35
		35	Millwrights	4	1
	3,070		Painters	19	20
	5,824		Plumbers-Fitters	10	73
	743		Servicemen	8	11
	1,650	—	Sheetmetal	3	68
Sub-Total	26,811	35		99	208

RENOVATION STATISTICS

			Carpenters	1	
			Painters	15	
			Truck Drivers	1	
	988		Janitresses	3	6
				20	6
Sub-Total	988				

SERVICE ORDER STATISTICS

			Carpenters	2	
			Electricians	6	
			Locksmith	1	
			Plumbers	4	4
	361			13	4
Sub-Total	361			132	

HELPERS-TRAINEES-ETC.

			Painter Trainee	1	
			Plumber Helper	1	
			Plumber Handyman	1	
			Sheetmetal Trainee	1	
			Carpenter Trainees	4	
			Carpenter Helper	1	
				9	
Grand Total	28,160	35		141	218

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MAINTENANCE TRANSPORTATION FACILITIES

HEAVY MAINTENANCE

Truck Type	Number in Possession	Craft	Requistioned for Replacement	
1½ Ton Flatbed	10	Carpenters		
3/4 Ton Power Wagon	1	Carpenters		
½ Ton Pickup	7	"		
Cushman Scooter	1	"		
2½ Ton Dump trucks	2	Labor		
1½ Ton Flatbed (Hyd.Lift)	1	Labor		
½ Ton Pickups	2	Labor		
1½ Ton Flatbed (Chain Hoist)	1	Millwrights		
½ Ton Pickups	3	Millwrights	2	Walk-In Type
½ Ton Panels	1	Painters		
1½ Ton Flatbed(Chain Hoist)	1	Painters		
½ Ton Pickup	1	Painters		
½ Ton Pickups	4	Plumbers		
3/4 Ton Pickups	4	Plumbers		
½ Ton Panel	1	Sheet Metal		
Sub Total	39		2	

RENOVATIONS

29 Passenger Bus	1	Painters	
Station Wagon	1	Painters and Janitresses	
½ Ton Pickup	2	Carpenters	
Sub-Total	4		

SERVICE ORDER

½ Ton Pickups (Service Body)	3	Electricians	3	3/4 Ton Pickups (Service Body)
½ Ton Pickup	1	Electricians		
½ Ton Pickups	2	Carpenters		
½ Ton Pickup	1	Locksmith		
½ Ton Pickup (Service Body)	3	Plumbers	3	3/4 Ton Pickups (Service Body)
Sub-Total	10		6	
Grand Total	53		8	

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MAINTENANCE NARRATIVE - FEBRUARY, 1951

Painting at Community Hall was completed as required, interior of one ranch house was painted because of fire damage; fourteen kitchens and thirty bathrooms were enameled in part or completely. Two hundred and sixteen window screens for precut houses were undercoated and painted. A total of 2,591 orders were completed by the service order group during the month.

Shower stalls and soap trays were installed in M-4 and M-6. Gutters were installed on all Women's dormitories, with work now in progress in Men's dormitories.

Five sewer lines were excavated and backfilled, five water lines and four oil tanks were excavated and backfilled. Six trees were removed. Fertilized lawn in dormitory areas and apartments. Opened fifteen clogged sewer lines. Grease traps were cleaned in commercial facilities, trash was removed from inside and outside of houses in renovation; delivered coal to houses and disposed of waste twice monthly at six service stations. Cleaned ash pit at 784 building weekly. Also pumped settling basins at 784 and 784-A weekly.

Millwright group have been assigned to routine work throughout the month with the exception of the installation of a stoker furnace at Campbell's Grocery No. 2.

Completed one hundred and one bath faucet repairs, overhauled water tanks and replaced war time radiator valves and traps in three dormitories. Checked commercial facilities one day a week for steam leaks, also checked dormitories, apartments and efficiency apartments one day a week for steam leaks

Repairs were made to eighty-five of the six hundred thirty-three prefab houses which were inspected. Work consisted of replacing rotted windows, sills and bad plywood panels. Six roofs were repaired, posts were replaced under seven prefabs.

A total of fifteen precuts were jacked and leveled this month, utility rooms were lined in sixteen prefabs, six front porches were repaired and six prefab windows were repaired. Twenty-three pieces of furniture were repaired and reupholstered. Seventy screen doors repaired and tileboard installed in ninety houses. The ten prefabs from Columbia Camp were cleaned and minor carpenter repairs made on them.

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M. S. WAREHOUSE SUMMARY FOR January 25, 1951 thru February 25, 1951

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TOTAL INV. $112,568.91

INVENTORY ITEMS AMOUNT $67,507.63

RECEIVED IN INVENTORY	CODE	AMOUNT	
ON STORE ORDERS		$ 749.17	
ON PURCHASE ORDERS		45.60	
FROM HOUSING	61-20	66.37	
FROM DORMS	64-20	403.62	
FROM DORM FURNITURE	64-20	16.12	
FROM HOUSING FURNITURE	61-20	91.32	
	TOTAL RECEIPTS		$ 1,372.20

INVENTORY DISBURSED			
Miscellaneous Charge		220.78	
FREE ISSUE	61-20	912.51	
CASH ITEMS	61-20	102.11	
DORM SUPPLIES	64-20	783.82	
DORM LINENS	64-20	791.66	
DORM SHADES & REFLECTOR	64-20	41.96	
DORM FURNITURE	64-20	40.46	
WHSE. SUPPLIES	63-20	87.32	
	TOTAL DISBURSED		$ 2,980.62
	INVENTORY ITEMS BALANCE		$65,899.21
	PLANT ITEMS AMOUNT		$45,070.34

	CODE	AMOUNT	
RECEIVED		$1,643.68	
DISBURSED		3,687.12	
	PLANT ITEMS BALANCE		$43,026.90
	GRAND TOTAL INVENTORY		$108,926.11

	PIECES
DORM FURNITURE EXCHANGED	49
RANGES EXCHANGED	6
REFRIGERATORS EXCHANGED	4
PRE FAB HEATERS EX.	34
SENT TO MAINTENANCE	65
RECEIVED FROM MAINT.	87

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DORMITORY REPORT

116 Minor repairs to fuses, plumbing, etc.
45 Work Orders, steam, glass, equipment, etc.
49 Pieces of furniture repaired.
50 Housekeeping contacts
468 Light globes replaced
82 Rooms vacated

Linens Laundered:

7,713 Sheets
4,124 Pillow cases
327 Bed Spreads
31 Bed Pads
199 Shower Curtains
51 Pairs of Drapes

6,000 square feet of flooring was refinished.

All lawns were fertilized this month.

Installation of automatic air conditioner controls is complete.

The steam system of two dormitories was completed this month.
Panic hardware has been removed from all doors which were not operating properly and a regular door knob was installed to eliminate wind damage.

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COMMERCIAL AND OTHER PROPERTY DIVISION

FEBRUARY, 1951

DIVISIONAL PERSONNEL:

Number of Employees on Payroll:	February
Beginning of month	13
End of month	12
Net decrease	1

COMMERCIAL AND NONCOMMERCIAL PERSONNEL:

Number of Employees on Payrolls:

	Commercial	Noncommercial	Total
January	1,097	81	1,178
February	1,089	81	1,170
Net decrease			8

SUMMARY OF ROUTINE ITEMS PROCESSED:

Work Orders	24	1	25
Back Charges	1	0	1
Service Orders	16	2	18

CONTRACTS AND NEGOTIATIONS:

A. Commercial:

1. Supplemental Agreement:

Richland Fuel and Lumber Company, amending Article III (RENT), Section 3, of the Lease.

2. Letter of Award:

(a) Cascade Coca-Cola Bottling Company, Inc., of Yakima, Washington, was awarded a contract for the establishment, operation and maintenance of an automatic vending machine service for the sale of Coca-Cola, to be located in certain noncommercial Government-owned buildings in Richland and North Richland, Washington.

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3. Letters of Authorization:

(a) Hanson Enterprises, Inc. was authorized to permit Young World, Inc. to sublet space to Yakima Broadcasting Company, owners and operators of radio Station KALE, for use as an office.

(b) Richland Investment Company was authorized to sublet space, approximately 8,200 square feet, in its building now under construction in the Uptown Business District to Thomas L. McKay for the establishment and operation of a variety store.

(c) Richland Investment Company was authorized to sublet space, approximately 720 square feet, in the northwest portion of the building now under construction in the Uptown Business District to Wiley Dickson for the establishment and operation of a shoe repair shop.

SUMMARY OF OCCUPANCY AND EXPANSION STATUS:

A. Commercial:	January	February
1. Number of Government-owned buildings	37	37
(a) Number of businesses operated by prime lessees	41	41
(b) Number of businesses operated by sublessees	13	13
(c) Total businesses operating in Government-owned buildings	54	54
2. Number of privately-owned buildings	41	41
(a) Number of businesses operated by prime lessees	37	37
(b) Number of businesses operated by sublessees	26	26
(c) Total businesses operating in privately-owned buildings	63	63
3. Total number of businesses in operation	117	117
4. Doctors and dentists in private practice, leasing space in Government-owned buildings	21	21
5. Privately-owned buildings under construction	2	2

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COMMERCIAL AND OTHER PROPERTY DIVISION: FEBRUARY, 1951

B. Noncommercial:	January	February
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	5	6
(c) Sites tentatively allocated or leases in process of negotiation	9	8
Total	19	19
3. Grazing Leases	39	39

GENERAL:

Noncommercial:

1. Construction work was started on a new building for the First Baptist Church at Richmond Blvd. between Raleigh Street and Putnam Street.

COMMERCIAL PROSPECTS:

A number of applicants, the majority of whom were not interested in constructing privately-owned buildings, expressed an interest during the month to establish and operate businesses in Richland. Inquiries were received covering the following types of establishments:

Beverage Vending Machine Service
Food Store
Fuel Oil Distributorship
Mobile Popcorn Machine
Outdoor Advertising Agency
Self-Service Automotive Service Station
Sporting Center
Warehouse

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GENERAL SERVICES DIVISIONS

MONTHLY REPORT

FEBRUARY, 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	4	15	19
North Richland Fire Division	35		35	34		34
Maintenance & Operation Division	9	72	81	9	70	79
Total	49	87	136	47	85	132

Personnel changes during month:

Transfers to Real Estate		1
Transfers to Instrument		1
Transfers from Real Estate		1
Terminations	2	2
New Hires		1

STEAM AND GENERAL MAINTENANCE DIVISION

General Maintenance:

Requisitions are open for one electrician journeyman, one carpenter trainee and replacement for painter journeyman. Five servicemen have been requested for April and May to do summer lawn work.

The interior painting program for 700 Area office buildings is progressing on schedule; 760 Building is 95% complete.

Several "spot and patch" paint jobs were required in connection with office partition removal and partition replacement.

Various odd sign jobs which have been heavy during the month were Red Cross signs, monthly Health and Security Bulletins and posters.

Two metal trash wagons were completed for Transportation. Installation of spotter at 784 Building is complete and ready for use. Spring overhaul of Desert Coolers for summer operation is progressing.

Four offices in north end of Public Health Building were revised for Roads Engineering group. The 704 Building is also being revised for new occupancy.

The floors of 761 and 762 Buildings have been leveled. Ventilating louvers are being installed in the lower skirting of these buildings, and the 760 Building, to provide air circulation and prevent "sweating" in the winter months. The lower portion of the skirting will be replaced with treated timbers, where it is in contact with the ground, to help prevent rain and sprinkling water from running under the buildings causing settling of floors.

The rebuilding of the safety sign in front of 703 Building is 75% complete; a similar sign near 300 Area is also being repaired.

Sixty-four fluorescent fixtures were installed and twelve relocated during the month.

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Miscellaneous service work was performed for Real Estate, Municipal and other Plant groups.

All traps and valves were repaired in the C. C. Anderson Store. Traps were in very poor condition and permitted considerable waste of steam. Repair of valves, traps and condensate system at The Mart is 30% complete.

Crew-Days Work on Hand:

Carpenter	20	Welder	15.5	Painting	46
Electrical	39	Sheetmetal	43	Sign Painting	27
Machinist	14	Millwright	28	Glazier	0
				Pipefitting	7

Steam Operation:

Four boilers were in operation during cold weather on the first of the month. On February 2, three boilers were able to carry the load and on February 5 it was possible to reduce to two boilers. On February 13 it was necessary to start operation of an additional boiler and continue with three until February 20. The coal conveyor breakdown on February 23 forced a change-over in operations from Number 3 and 4 boilers to boilers Number 1 and 2 in order to continue operations by using the full bunkers of the latter boilers. Number 3 boiler was then placed back in service on February 26 to carry the additional load, and three boilers remained in service for the balance of the month.

Steam operations for 1131 Area were normal for the month.

Steam generated - 27,223.8 M. lbs.: steam leaving plant - 23,091.1 M. lbs.; steam delivered - 21,619.4 M. lbs.: coal consumed - 2,094.1 net tons.

NORTH RICHLAND PATROL DIVISION

During the month five inquiries regarding formerly employed construction personnel were answered. These inquiries came from the U. S. Navy, U. S. Army and Civil Service Commission.

There were twenty traffic violations during the month. These included five speeding violations, four stop sign violations, seven no operator's license violations, one negligent driving violation and three passing in no-passing zone violations.

On February 20, Sterling Spivey, charged with vagrancy and disorderly conduct, was escorted to Prosser. He was sentenced to serve ten days in jail.

There were seven automobile accidents in North Richland during the month.

All facilities, warehouses, buildings and the John Ball School were checked daily on No. 1 and 3 shifts, and on all shifts on Sundays and holidays during the month.

Thirty-two manhours were spent on the bank escort service.

All fire, safety and traffic hazards observed by North Richland Patrol during the month were reported to the proper authorities.

An appearance officer was assigned to Judge E. W. Brown's court, on each Thursday during the month, to appear against persons cited to court by North Richland Patrol.

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Fifteen persons were incarcerated in the Richland jail during the month; seven for public intoxication, four for vagrancy, two for drunken driving, one for lewdness and one for third degree assault.

The population of North Richland was increased by 192 persons during February.

A police school, relative to "In Service Training", was held in Pasco on each Thursday during February. North Richland Patrol personnel in attendance were: C. H. Overdahl, H. R. McMeyer, R. R. Robertson, J. E. Coleman, E. E. Bull, D. R. Montgomery, O. G. Scheffner, G. W. Benitz, W. W. Kerr, H. Struble and W. T. Henderson.

On February 13 and 14 caution signs and lighted flare pots were placed near "Twin Bridges". These were used to warn people that the river had risen over the road. The signs and flares were placed and serviced by North Richland Patrol.

A staff meeting was held on February 8 in North Richland Patrol Headquarters.

On February 10, offices 5 and 7 in Building 18 were established for the use of Civilian Defense.

One hundred fifty courtesy cards were issued by North Richland Patrol during the month. These cards were placed on vehicles that were in violation of parking regulations. It is hoped that these cards will bring about more cooperation between North Richland Patrol and the public.

One hundred fifty-three traffic warning tickets were issued to the public during February. The violations consisted mostly of illegal parking.

Population in North Richland is as follows:- Bremerton Houses - 643; Trailer Camp - 3,078; Barracks (Men) - 1,277; Barracks (Women) - 42; total population - 5,040.

Total occupied lots in Trailer Camp are 1,093; total Bremerton Houses occupied - 189.

Unusual Incident Reports

Public Intoxication	6	Negligent Driving & No Operator's License	1
Vagrancy & Public Nuisance	1	Vagrancy & Disorderly Conduct	1
Lewdness	1	Drunken Driving	2
Vagrancy (Juvenile)	1	Vagrancy	3
Unauthorized Person in Men's Barracks	1	Auto Accidents	5
Third Degree Assault	1	Failure to Stop & Identify	1
Negligent Driving	1	Vandalism	1

Special Services Performed

Emergency Messages Delivered	39
Emergency Long Distance Telephone Calls	84
Western Union & Pacific Telegraph Telegrams	9
Fires (Signal 12)	6
False Fire Alarms	5
Unusual Conditions Reported to Maintenance	14
Escorts to First Aid	5
Bicycles Reported Missing	5
Bicycles Found	3
Bicycles Returned to Owner	2

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Children Lost	2
Children Returned to Parents	2
Automobiles Impounded at North Richland Patrol Headquarters	5
Personnel Locked Out of Rooms	4
Firearms Checked into Contraband Room	9
Firearms Checked out of Contraband Room	21
Firearms Registered with Arsenal Officer	7
Ambulance Detail	4
Billfolds Turned in to Patrol	2
Billfolds Returned to Owners	2

Complaints

Grand Larceny	1
Petit Larceny	1
Miscellaneous	4
Cases Cleared	4

There are ten posts in the North Richland Area at the present time; five fixed posts, five reposts.

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GENERAL SERVICES DIVISIONS
NORTH RICHLAND PATROL
COURT CASES

February 1951

VIOLATION	NO. OF CASES	NO. OF CONV.	NO. OF FORF.	CASES CONT'D.	CASES PEND.	SENT. JAIL	SENT. SUSP.	LIC. REV.	TOTAL FINES	TOTAL SUSP.	TOTAL BAI FORF.
STOP SIGN	5	1	3	1	1				$ 5.00	$	$ 15.00
NO OPERATORS LICENSE	7	6		1	1				35.00	7.50	
NEG. DRIVING	4	4					3		32.50	47.50	
SPEEDING	6	3	3						32.50		37.50
NO VALID PLATES	2		2								25.00
FAILURE TO YIELD RIGHT OF WAY	2		1				1			12.50	7.50
PARKING (ILLEG.)	3	1	2						3.50		7.00
DRUNKEN DRIV.	3	3						3	182.50		
PUBLIC INTOX.	7	2	5						25.00		82.50
VAGRANCY	4	2	2			*2					35.00
PUBLIC NUISANCE	1		1								17.50
LEWDNESS	1	1							17.50		
TOTAL	45	23	19	2	2	*2	4	3	$333.50	$67.50	$227.00

*One committed to County jail in Prosser for 10 days.
*One taken to Prosser for trial in Superior Court. (No disposition at time of this report).

392

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NORTH RICHLAND FIRE DIVISION

Alarm No.	Response to Alarms	Verbal	Box	Phone
12	Trailer House at 312 "F" Avenue.	1		
13	H. W. barracks at 4th St. & "W" Ave.		1	
14	H.W. barracks 126-D at 1st St. & "Q" Ave.		1	
15	John Ball School at 6th St. & "C" Ave.		1	
16	H.W. barracks 228-B on "Q" Ave. between 3rd & 4th Sts.			1
17	300 Area			1
18	H.W. barracks 240-D at 4th St. & Stevens Drive.		1	
19	Trailer Camp 8th St. & "C" Ave.		1	
20	Bremerton house at 513 "B" Ave.		1	
21	H.W. barracks 228-C on "M" Ave. between 3rd & 4th Sts.			1
22	7th St. and "C" Ave.		1	
23	Pasco barracks between 1st & 2nd St. on "Q" Ave.		1	
24	H.W. barracks at 4th St. & Stevens Drive.		1	
	TOTAL	1	9	3

Alarm No.	Cause for Alarms	Personal Loss	H. W. Loss
12	Defective oil stove.		
13	Accidental alarm.		
14	Probable - spontaneous ignition.		*$100.00
15	Accidental alarm.		
16	Smoker's carelessness.	$16.81	
17	Unnecessary alarm.		
18	False alarm.		
19	False alarm.		
20	Short circuit in wiring of electric range.		
21	Electrical (motor overheated in washing machine).		
22	False alarm.		
23	Accidental alarm.		
24	Accidental alarm.		
* U. S. Army	TOTAL	$16.81	$100.00

Investigations

2/12/51	Barracks 246-A, Rm. 8, smoker's carelessness	$22.61
2/17/51	Barracks 228-C, washroom. Motor wouldn't operate washing machine.	
2/19/51	Barracks 246-D, Rm. 16, smoker's carelessness.	26.68
2/23/51	Barracks 236-A, Rm. 20, smoker's carelessness.	17.00
2/24/51	Tavern, Bldg. 20, on "Q" Avenue. Odor.	
2/27/51	Steam Plant on 1st Street between "Q" Avenue and Geo. Washington. Dust explosion in coal silo.	
		$66.29
	GRAND TOTAL	$83.10

$ 0.00

$100.00

General

Three safety and security meetings were held during February.

Eleven inside drills and three outside drills were held during the month.

Seventy-four fire alarm boxes were tested. Seventeen fire extinguishers refilled.

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Two firemen reported to Kadlec Hospital for physical examinations.

First Aid class was conducted at John Ball School.

All members on "A" Shift attended the film "You Can Beat The Atom Bomb" at the North Star Theater.

Light generator was sent to 1131 Garage for repairs.

Female to male light adapters were installed on floodlight (pig-tail) extension cords.

"B" Shift supervision inspected electric controls in Hanford barracks.

General truck # 2908 was sent to 1131 Garage for repairs and trucks # 2609 and # 2549 and Tanker were steam cleaned.

Supervision of "A" and "B" Shifts attended school on "How Our Business System Operates", Dorm W-10, Richland.

Auxiliary alarm system in Pasco Barracks 156 was tested.

Evacuation and Alarm System in Pasco Barracks 191 was tested after building alterations were completed.

A near serious accident at the North Richland Steam Plant was investigated.

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DESIGN & CONSTRUCTION DIVISIONS

I. ORGANIZATION AND PERSONNEL

Employees on D&C Payroll

	Beginning	February End	Net Change
	662	669	+7
Employees on Loan from:			
Instrument Division	7	7	
Purchasing & Stores	0	1	
Schenectady	1	4	
Pile Technology Division	1	2	
	9	14	
Total D&C Divisions	671	683	+12

II. INVENTIONS AND DISCOVERIES

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

None

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ACCOUNTING DIVISION

I. SUMMARY

Project C-289, Additional Laundry Facilities 200 West, was unitized and transferred to Finished Plant.

Financial Closing Cost reports were issued on the following projects:

C-292 Grading and Resurfacing Van Gieson Road
C-299 Improvement of AEC Airport
C-314 Hains Avenue Improvement
C-328 Improvement to Lee Boulevard
C-352 Improvements to Jadwin Avenue

Total cash disbursed during the month of February was $4,799,656 compared with $4,432,321 disbursed during January.

II. STATISTICAL AND GENERAL

Accounts Payable Distribution Summary follows:

	February	January
General Electric Purchases	$ 1 307 739	$ 1 327 421
Reimbursement - Atkinson-Jones CPFF Subcontract - Construction	2 501 785	2 182 026
Reimbursement - Atkinson-Jones CPFF Subcontract - Service	244 375	152 284
Reimbursement - Other CPFF Subcontracts (Architect Engineers	206 132	389 678
Partial Payments to Lump Sum Subcontracts	287 122	98 599
Travel (General Electric)	3 673	5 521
Miscellaneous	25 060	72 827
Total Credited to Accounts Payable	$ 4 575 886	$ 4 228 356

Subcontractors Payroll Statistics:

	February	January
Total number of employees reported by CPFF subcontractors	5 362	5 038
CPFF Construction Subcontractors Payrolls	$ 2 169 874	$ 1 777 044
CPFF Service Contract Payrolls	195 551	153 253
Architect Engineer Payrolls	119 827	284 668
Total CPFF Payrolls	$ 2 485 252	$ 2 214 964

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	February	January
Average per week (4 week period excluding Architect Engineers	$ 542.469*	$ 444 261
Average Weekly Earnings	$ 101.17	$ 88.18

*Includes $29,750 retroactive pay adjustment to plumbers and steamfitters, sheetmetal workers and increased overtime schedule in connection with Redox Program.

In February a check was received from Kellex Corporation in the amount of $100,000 which reduced their advance account to a present balance of $300,000.

Considerable planning is in process for the handling of accounting relative to the March 1, 1951 transfer of the Project Engineering Division from the Manufacture Division to the Engineering and Construction Divisions.

III. PERSONNEL

Employees on payroll:

FEBRUARY

Beginning	End	Net Change
71	73	+ 2

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CONTRACT DIVISION

I. SUMMARY

Negotiations with Chas. T. Main, Inc. have been successfully completed covering the design of a water plant and appurtenant facilities for the 100-C Area. The subcontract document has been prepared and will be executed immediately.

Contract was approved by the Commission on February 27, 1951 with L. H. Hoffman for construction of the Hot Semiworks.

Final payment on C-265, J. A. Terteling and Sons, Inc. - Paving and Related Work - was made February 28, 1951.

Restatement of Atkinson-Jones' Contract in draft form now in the Commission's hands for comment.

II. STATISTICAL AND GENERAL

Ten contract items showing an increase of $3,055,206.54 and two items showing a decrease of $120,795.24 were completed in February.

III. PERSONNEL

Number of employees on payroll:

FEBRUARY

Beginning	End	Net Change
31	31*	0

* Includes two employees on loan to other divisions.

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CONSTRUCTION DIVISION

I. SUMMARY

New work authorized to the Construction Division during February 1951, consisted of (1) installing telephone cable, 3000 Area, (2) service piping - 234-5 Building, (3) percolation basin at Duke Well field, North Richland (4) masonry wall and door openings - 700 Area Civil Defense Office and (5) alterations to Hutment 712-A. The following subcontractor forces were assigned as of the end of February 1951: 117 to Project Engineering Division, 50 to Construction Camp and 336 to Construction Division work.

II. STATISTICAL AND GENERAL

C-362 - Waste Metal Removal & Recovery Facilities
Phase I Tank Farms 241-U and 115 Tank 241-TX - The progress of work in these areas consist of concrete and equipment installation in the first cascade, concrete work in the second cascade and excavation for third cascade and pipe trenches. Concrete pits have been completed on 115-TX Tank. Considerable delay and expense have been incurred in having to enlarge the existing manhole openings for pump installations on 101, 102 and 103 tank tops to permit installation of equipment. These openings are not in conformity with "as built" design drawings.

Work is in progress on the four (4) empty tanks in Phase II, expecting to have necessary structure work completed before the tanks start filling April 1, 1951.

Phase II, 241-BY and C Installation of temporary facilities started February 19 and construction is scheduled to start March 1. According to schedule the 101 tanks in BY area was not to start filling before April 1 but has been found that this tank contains waste material and work will have to be done under SWP conditions on all tanks in the 241-BY farm.

C-295, Enlarging 251 Substation
Construction of by-pass line was accepted this month.

C-416 - Construction Division, D&C Combined Shops
Construction work in progress for structures and equipment installation. Project is approximately 25% complete.

C-367 - Moving 10 Prefabs From Columbia Camp to Richland
W. O. CC-2680 - Interior Painting of Ten (10) Prefab Houses - Work completed February 14.

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[redacted] DECLASSIFIED HW-20438 DEL

C-289 - Additional Laundry Facilities, 200 W Area
W. O. CC-2551 - Exterior Painting of Laundry - 200-West - Materials have been received and work will be started as soon as weather permits.

C-198 - 234-5 Building Program
W. O. CC-2749 - Service Piping in 234-5 Building - Argon line tie-up completed February 22, 1951, "D", "F" and "G" lines completed except flushing and testing which will be done after lines on construction side of wall are completed. Overall work as requested is approximately 30 percent complete.

W. O. CC-2676 - Alterations to Rooms 177 and 179 in 234-5 Building
Work is approximately 60 percent complete and completion is expected March 1.

RDA - D&C No. 1
W. O. CC-2614 - Reactor Division Test Tower Installation - Work completed February 23.

MWI-15 - Reactor Division - Charging Machine Test - Work has been discontinued as of January 16, 1951, due to lack of engineered material items. Work will be completed one week after receipt of material.

W. O. CC-2785 - Block Wall and Doorways in Records Building - Work started February 23.

Safety
Safety inspections were made in all areas.

	February 1951
Minor Injuries	16
Lost Time Injuries, Accidents (Automotive, Fires)	0

Control Engineering

All take-offs for 241-U Area are complete, take-offs for 241-C are 50% complete and take-offs started on 241-TX and 241-BY.

III. PERSONNEL

	FEBRUARY		
	Beginning	End	Net Change
General Electric	26	32	+6
Sub and Subcontractors			
Non-Manual	39	43	+4
Manual	452	503	+51
	491	546	+55

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ENGINEERING AND CONSTRUCTION SERVICES DIVISION

I. SUMMARY

A considerable shift in Construction Services supervisory personnel assignments was effected this month, including the promoting of two men to supervisors. One supervisor resigned.

Most of the Construction Services personnel worked Washington's Birthday to provide required service to the subcontractors who did not observe the 22nd as a holiday.

The Engineering Services' work load has been heavy the past month. Saturday work is being used to meet critical schedules.

The Drafting Section's activity is substantially on schedule. Drafting on the C-417 and C-418 Tank Farms is 60% complete and the accelerated design program is expected to be finished on schedule. Drafting activity on the new production facility is being stepped up. Design responsibility for the various components of this facility has been delegated. The Drafting Section has been assigned items such as shielding, instrumentation, process tubes, control rods and the like. Drafting assignments from the Separations Division and the P&M Division are expected to be reduced.

The volume and urgency of work on backlog in the Reproduction Section exceeds that for any recent period. The demands for photostat work and reproducibles have been heavy the past month. The large turnover of personnel accounts for the slight decline in efficiency. This condition is expected to be remedied soon because of fewer employees being eligible for military service.

II. STATISTICAL AND GENERAL

North Richland Camp
Population*

Trailers	3,039	
Barracks	1,284	
Houses	643	
Total	4,966	Net increase 156

*Note: This does not include U.S. Army personnel.

Maintenance
The reconditioning of wells in the 3000 Area is nearing completion, and it is believed that the pumps will be reinstalled within the next week.

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Steam Generating Plant

Steam generated, M lbs.	51,814.00
Oil consumed, gallons	9,254.00
Coal consumed, tons	3,694.36
Boiler efficiency, average %	75.03

Steam cost, per M lbs. $.885

Water consumption for the month was 43,932,000 gallons or an average daily consumption of 1,569,000 gallons.

General

A N.L.R.B. election was held at the Steam Plant February 23, 1951 to determine if operators and mechanics desire to be represented by the HAMTC. All eligible employees voted. The results were 10 to 6 negative.

Excessing of materials has been completed and details of handling maintenance supplies have been worked out with the Construction Division.

Rehabilitation of the Bremerton Houses has been completed.

The contract has been let for piping work in the John Ball School, the hospital and the transportation warehouse.

Commercial Facilities

There were seventeen commercial facilities operating in North Richland during February.

Community Activities

The North Richland Improvement Group is continuing with its building program and late summer should find them with a very attractive community house.

The nearly renovated teen-age club room was opened February 20, attended by approximately sixty teen-agers and guests.

The baseball and softball fields have been getting some initial repairing.

There were fifty-eight religious and sixty-two social meetings conducted during the month.

Security

Statistical Information

During the month, 389 meetings were held at which Security topics were discussed. These meetings were attended by 10,200 employees. Two Security Bulletins were issued.

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Safety

Construction Injuries	Contractors
Major injuries	4
Sub-Major injuries	6
Minor injuries	435

Civilian Defense

Civil Defense headquarters organization have been established with a receptionist on duty eight hours a day. A warden organization is being effected.

A control and alternate control center has been established. Meetings are being held in which warning signals have been explained. First-aid classes are being conducted in conjunction with the Red Cross.

An earthen ditch 700 feet long, 12 feet wide, and 4 to 6 feet deep has been constructed approximately 200 feet east of the John Ball School for school children's protection.

Drafting Section

Drafting Production

New Drawings	234
Miscellaneous	48
Drawing Revisions	94
Drawing efficiency index, man-days/drawing	5.5

Estimating and Standards Section

Estimating

Estimates Scheduled	20	
Estimates completed	10	
Estimates to be completed	10	
Total estimated value		$ 60,000,000

Unit Costs

Studies continued on Project C-187-D and C-362
Studies continued on G. E. Construction

Reproduction Section

Production Group Activity	February
Originals Handled	16,808
Prints Produced	165,694
Square Feet of Paper	551,040
Average Square Feet Per Employee	32,414

Control Group Activity	February
Number of Orders Processed	2,329
Number of Prints Carded	69,415
Number of Tracings Handled	16,339

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Personnel, Records and History Section

Security Clearances Processed

Requests for Area Badges, cancellations, access authorizations and material and package passes	451

D&C Payroll Additions, Terminations and Transfers

Additions	31
Terminations	25
Transfers within D&C Divisions	5
Transfers out of D&C Divisions	9

Secret and Confidential Documents Processed

Documents Issued, Routed, or Destroyed	1,596

Procedures Issued

D&C Instructions Issued	56

Status of Histories

Histories Issued	1
Ready for Issue	23
Others in Process	102

Office Services

All office services requirements were met.

Reports Issued

Nine, covering weekly and monthly forces, visitors, destroyed and reclassified documents.

Project Cost and Progress Analysis Section

Forecasts, charts, analyses and reports were developed and issued to show status of D&C projects.

III. PERSONNEL

Number of employees on payroll:

	February	
Beginning	End	Net Change
308	304	-4

[redacted]

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HW-20438 DEL

ENGINEERING & CONSTRUCTION SERVICES DIVISION

Drafting Section

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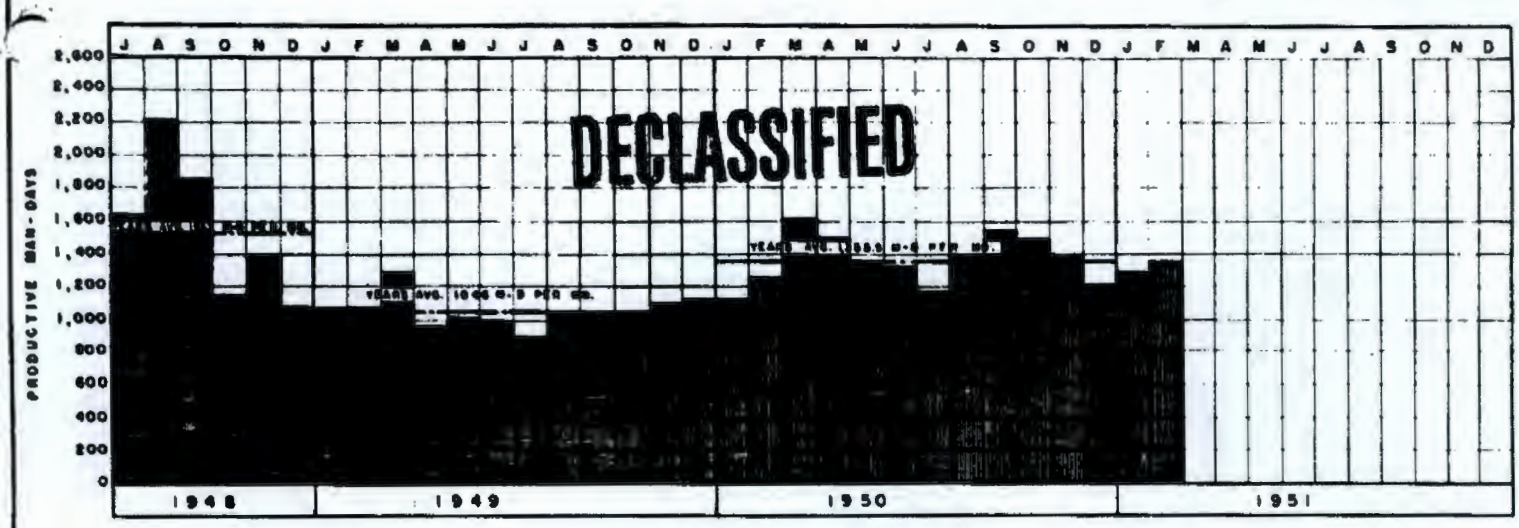
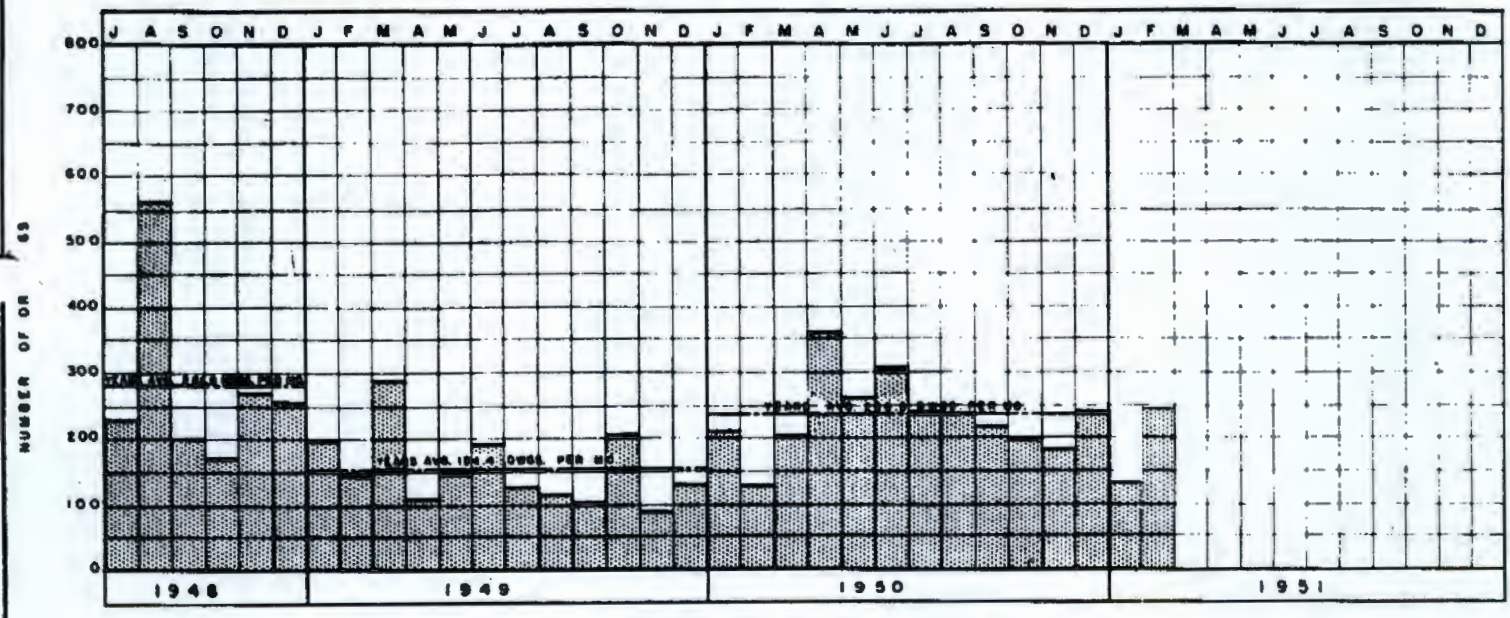
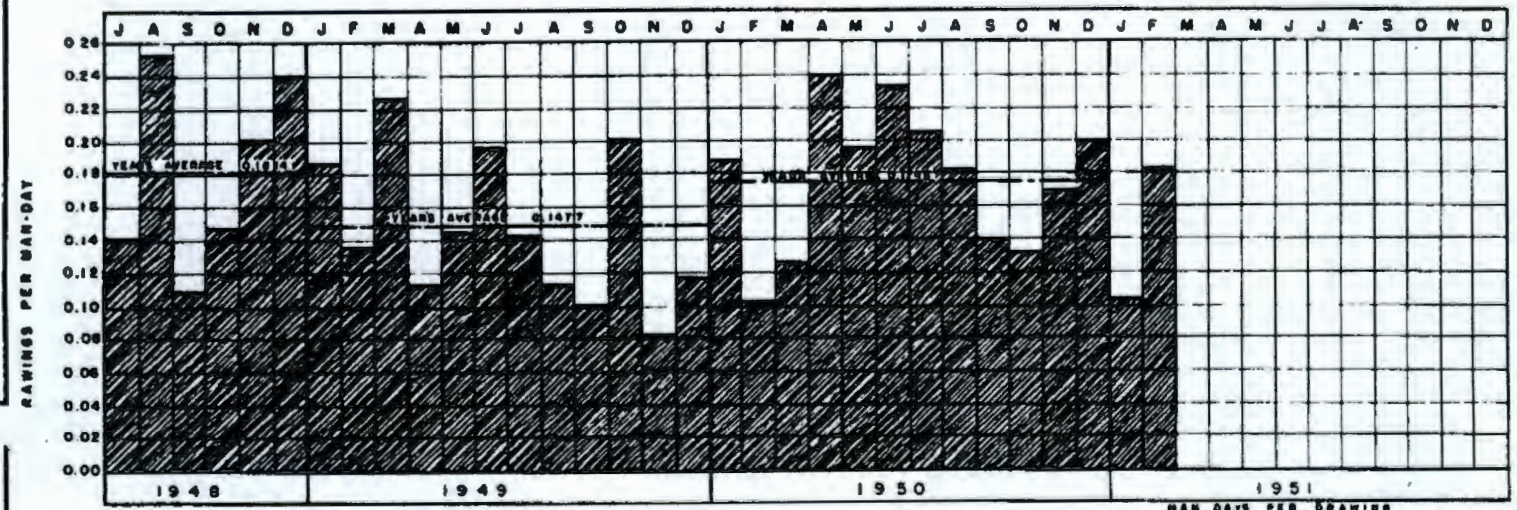


MAN POWER



DRAWINGS PRODUCED



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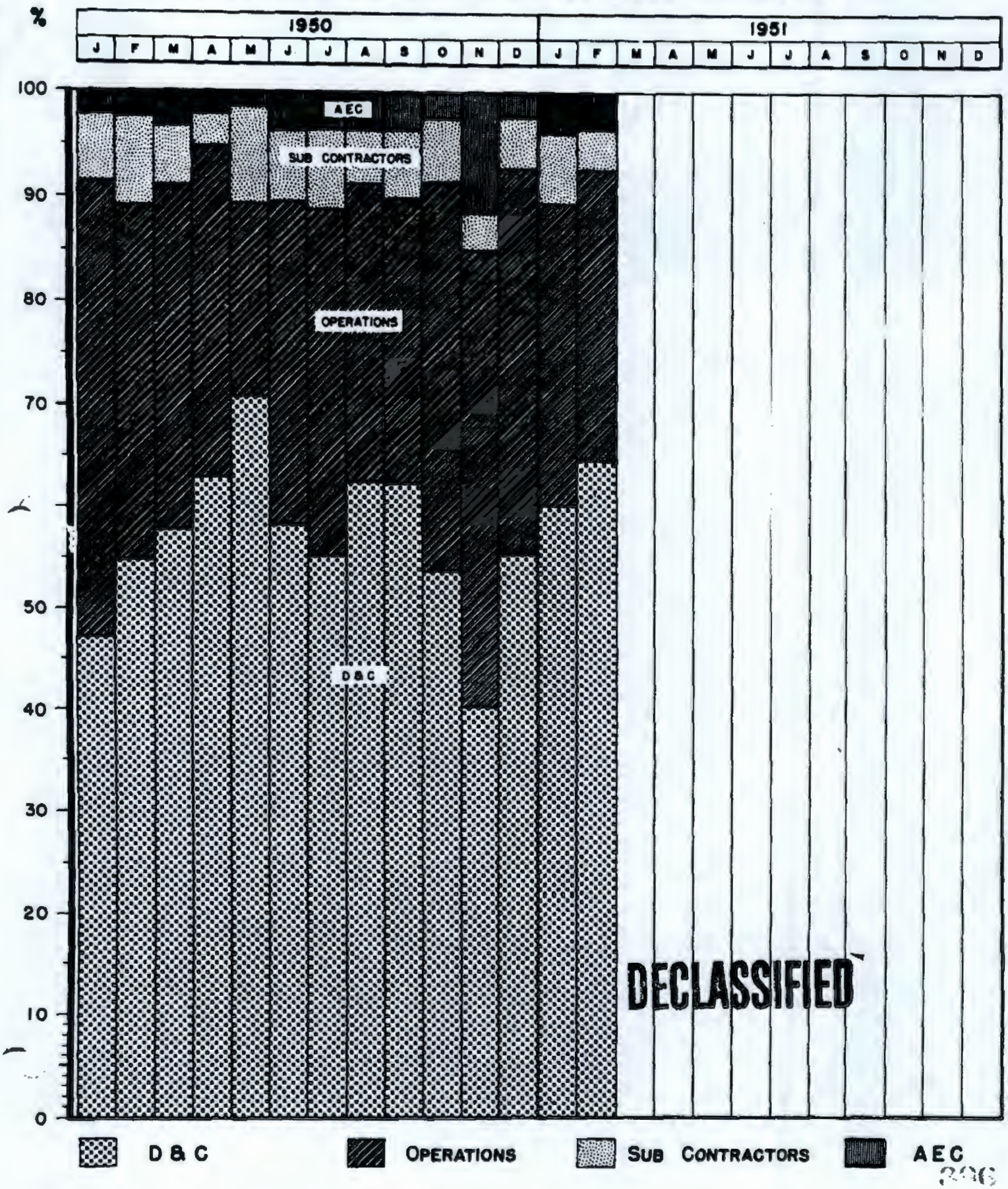
EFFICIENCY

	MAN DAYS PER DRAWING 1948	1949	1950	1951	AVG
BATES	4.48	5.42	6.33		5.03
DEUSNER	5.04	7.74	4.89		5.73
NICHOLS	5.46	6.91	6.17		6.22
WILLIAMSON	6.33	5.98	5.70		6.00
DR. ROOS	5.51	5.47	5.73		5.57

ENGINEERING & CONSTRUCTION SERVICES DIVISION
DECLASSIFIED REPRODUCTION SECTION
HW-20438 DEL

DISTRIBUTION OF WORK LOAD



ENGINEERING & CONSTRUCTION SERVICES DIVISION

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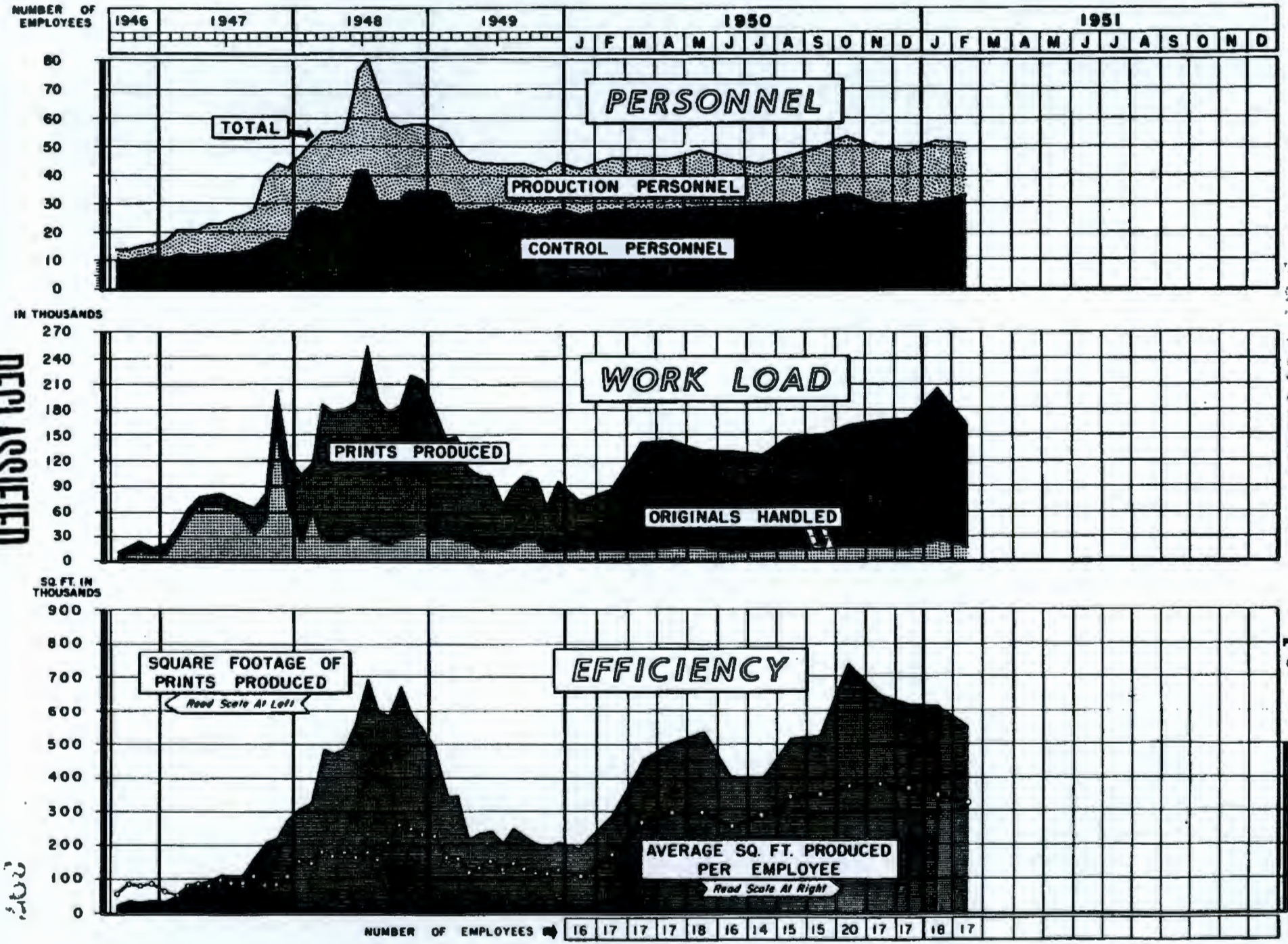

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HW-20438

[redacted] DECLASSIFIED HW-20438 Del

POWER AND MECHANICAL DIVISION

I. SUMMARY

Approximately 72% of the total man-hour work load for design engineering group was expended in engineering assistance to other divisions. A slight decline in work required by Separations Division was more than taken up by additional work performed for the Reactor Division.

Construction work started on the H.I. Laboratory south of 300 Area, on February 19.

No inventions or discoveries were reported.

II. STATISTICAL AND GENERAL

Following is a brief summary of active projects:

C-199, Expansion of 300 Area Sanitary Sewer Disposal System
Work Authority RM-2114 was issued January 30 and based on AEC Directive HW-8, Mod. No. 2, authorizing the preparation of final design and specifications.

C-204-B, Additions and Alterations to Kadlec Hospital & Medical Arts Bldg.
Final payment to the contractor (Lewis A. Hopkins) for the Medical Arts extension was made on February 23.

Award of the construction contract for the additions and alterations to the Kadlec Hospital was made and notice to proceed issued to the successful bidder, Malarkey & Moore, Portland, on February 26.

C-257, Health Instrument Control Laboratory
The construction contractor, Sound Construction and Engineering Co., Seattle, started site work on February 19. Concrete work on footings and piers is progressing satisfactorily.

C-295, Enlarging 251 Substation
Bids for the lump sum construction of this project were opened at 2:00 PM February 15. Recommendation to the AEC that award be made to the low bidder, Montgomery Electric Co., Seattle, was made on February 19, the bid price being $117,398.

Final inspection of the temporary 230 KV By-Pass line was made on February 21. Electrical Division has arranged for necessary outages on February 25 and March 7, to provide for the further prosecution of the work.

C-353, Richland Water Study
The study report on the above project was reviewed with a representative of Alvord, Burdick & Howson during the week ended February 16. The review will result in the incorporation of certain changes and additions, and the revised report will be submitted by March 10. The contract date has been extended by 30 days to March 20.

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C-364, Aquatic Biology Laboratory
Final plans and specifications for this project were reviewed with representatives of Barrett & Logan, the architect-engineer, on February 12 to 14. Plans and specifications are being revised by the architect-engineer to include sufficient detail to provide basis for a lump sum construction contract. Revised plans and specifications will be be submitted by March 10. Mod. 2, 2-27-51, authorizes 442,000 of which $383,000 is for construction.

C-381, Radiochemistry Building
Final plans and specifications are enroute. A Project Proposal requesting construction funds was approved by the A&B Committee and transmitted to the AEC on February 13. No directive has been received thus far.

C-385, Radiometallurgy Building:
Preliminary plans and specifications prepared by Leland S. Rosener were received on February 23 and the design is approximately 30% complete. Design on four items of special mechanical equipment is approximately 70% complete.

C-394, Plot Plan & Utilities - HW Laboratory
Project Proposal requesting funds for the power plant was submitted to Technical Divisions on February 2 and transferred to the Power Division on February 3. This proposal was re-written by the Power Division and has not yet been submitted to the A&B Committee.

Design of outside utilities being performed by Leland S. Rosener is approximately 50% complete.

C-406, Mechanical Development Building
Notice to proceed with the construction of Phase I of this project, the construction of building shell, was issued to Dix Steel Building Co., Spokane, on February 21. Project Proposal date and estimate for Phase II construction (less shop equipment) was submitted to Technical Divisions on February 24.

C-414, Pile Technology Building
Outline drawings and specifications prepared by Chas. T. Main, Inc. were reviewed in Richland with Main representatives during the week ended February 3.

C-421, Library & Files Building
The architect-engineer, Chas. T. Main, Inc., is proceeding with preliminary design.

C-431, Design of a New Reactor
This project has been devided into two section, Section A includes Water Works and other appurtenances; Section B includes the Reactor. Directive HW-222, 1-30-51 authorizes $2,000,000, Mod. 1, 2-9-51, authorized $5,000,000 of which $2,000,000 has been allocated to the Power and Mechanical Division.

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A construction cost estimate for fee purposes was prepared and agreements reached with the proposed architect-engineer, Chas. T. Main, Inc. During the week ended March 2, representatives of Main were in Richland negotiating contract details and fee. Informal agreement on all unsettled contract matters was reached on February 26.

Material procurement was initiated on February 15 with a requisition for 3200 tons of reinforcing steel, supplemented by the withdrawal of 660 tons from GE Stock. Further requisitioning will await development of preliminary design.

III. PERSONNEL

Employees on payroll:

FEBRUARY

Beginning	End	Net Increase
55	57	+ 2

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PRINCIPAL ENGINEERS

I. SUMMARY

The activities of the Principal Engineers consisted of reviewing and commenting on drawings, design documents, specifications, preparation of special report and recommendations on utilities, such as steam, water and electrical.

Investigation of the effects of new project electrical loads on utility systems.

Consulting services on technical matters.

Carried on Recruitment program of Technical Engineers.

II. STATISTICAL AND GENERAL

Special Reports
Electrical and Mechanical Engineers of the 1951 Graduating Class were interviewed at the Universities of California Institute of Technology, University of California at Los Angeles, and University of Southern California. Chemists and Chemical Engineers of the 1951 Graduating Class were interviewed at Oregon State College and the University of California at Berkely. Recommendations for employment of certain men were made.

Consulting and Advisory Service
C-361 Metal Conversion
Discussed ventilation proposals for 224-U as arbitrar.

C-362 Metal Waste Recovery Facilities
Exmmined problem of increased filtered water pumping capacity in 283-W. Suggested further study and cost evaluation be made of making impeller changes on existing pump and addition of a new pump instead of replacing pumps. Suggested investigation of emergency power supply to 283-W pump room for firm fire supply.

Re-examined the boiler rating in 284-W. Suggested possible justificatio for economizers on basis of anticipated higher average process load and increased capacity resulting from recovery equipment.

Investigated feedwater heater capacity for 284-W and suggested delaying committment for a second unit.

C-394 Plot Plan and Utilities
Assisted project group on firming design specifications for addition to 384 steam plant.

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[redacted] DECLASSIFIED HW-20438 - Del

C-431 Design of a New Reactor
Discussed problems in meetings in connection with electrical power and telephone service for construction and for the permanent facility. Also gave information and advice on Reactor building power distribution and instrument supply systems.

C-414 Pile Technology Building
Reviewed preliminary drawings and discussed electrical systems with Chas. T. Main's Electrical Engineer.

III. PERSONNEL
Mr. John M. Fox, Jr. was appointed Principal Metallurgical Engineer.
Mr. C. O. Honning resigned.

Employees on payroll:

FEBRUARY

Beginning	End	Net Change
4	3	-1

[redacted] DECLASSIFIED

I. SUMMARY

Initial authorization was received from the Atomic Energy Commission to proceed with the initial design work and the procurement of initial items for the "C" production facility. (Project C-431-B). This authorization is described in HW-222, dated January 30, 1951, and in Modification 1 to Directive HW-222, dated February 9, 1951. This directive provides funds in the amount of $5,000,000 of which $3,000,000 was allocated to the Reactor Division.

The greatest effort during the past month was expended in shifting from the "C" design and development program to the construction design of the "C" facility. Considerable effort was absorbed in obtaining agreement on the design criteria and scope. One example is the decision which was made on February 15, 1951 to use the present type "B" block instead of the poured concrete design. A major portion of the development test program was either dropped or suspended and the associated manpower was diverted to the new "C" design program.

Personnel from both the Reactor and P & M Divisions spent considerable time in preparing a design criteria for the Architect-Engineer Procurement was initiated for many items of the critical materials and equipment.

A letter project proposal and preliminary cost estimate for the "C" facility was prepared and submitted to the Appropriations and Budget Committee on February 23, 1951. The proposal contained a preliminary cost estimate based on "H" design, with adjustments to compensate for modifications intended for the "C" reactor.

A preliminary design, procurement, and construction schedule was prepared and copies were submitted to appropriate representatives of interested Divisions. One preliminary meeting has been held to reconcile schedules, and additional meetings will be held during the week of February 26, 1951.

II. STATISTICAL AND GENERAL

Architect-Engineer Services for Project C-431-B

Representatives of the Kellex Corporation, possible architect-engineer for the Reactor portion of the project, visited Hanford during the week of February 5 and February 26. Preliminary discussions were held regarding the division of the work for the "C" design program, and an agreement was reached concerning the method for establishing the A-E fee. A proposed scope of work and scope of services to be performed by the architect-engineer has been compiled and transmitted to the General Electric Contract Division for incorporation into the contract.

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Procurement for Project C-431-B

Requisitions for approximately $690,000 worth of equipment for the "C" facility have been written. Bid openings for structural steel were scheduled for February 26, 1951 and it is expected that the order will be placed during this week. A Take-off of all embedded material below the 0'-0" level has been completed and is currently being screened to determine which of the miscellaneous items can be furnished from plant stocks. A second take-off of critical embedded materials above the 0'-0" level has been completed and is in the process of screening.

Process Tube Heat Transfer

Several studies were made to provide information for the working committee of Project C-431-B. These studies included a comparative analysis of the enlarged versus the standard annulus and the water requirements for both normal operations and shutdown conditions. Serveral heat transfer tests were run to afford a basis of determining the effects of annulus size and pigtail on the header pressure suppress boiling. The special cosine heater was successfully run.

Materials Development

The creep tests of aluminum and zirconium were continued throughout the month with negligible creep rates. Creep tests on the 3/4 inch, 24-Mil wall zirconium tube at 100° C and 9000 psig stress have been in progress for 1700 hours, and the creep rate at 700 was negligible. Further studies of zirconium tube fabrication are underway at KAPL. Attempts to fabricate a boron-stainless rod by piercing or roll-welding have been discontinued due to projects of higher priority. Adequate nickel for the Ball 3-X system is available for Project C-431-B requirements.

Shielding

Engineering effort was shifted from the poured concrete shield to the "B" block shield for the reasons contained in Documents HDC-2028 and HDC-2036. The latter document contains the minutes of the Scope Committee meeting on this subject.

Moderator

Two engineers were assigned to this design project on a full time basis. The moderator design for "C" will consider the coring and undercutting features which were planned for the "G" reactor.

Building and Facilities

Assistance was obtained from the Power and Mechanical Division in preparing the design criteria for the 105-C Building and its services. The criteria has required the services of from four to six engineers during the month, including Reactor Division personnel.

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Continuous Charging
The discharging machine was manufactured and shipped to Hanford for Tests to be performed in the 189-D Laboratory. The design of a prototype test elevator and the discharging machine carriage was completed. The drawings and requisitions were issued for procurement.

Vertical Rod Tests
The installation of the complete vertical rod assembly, including the inverted thimble, was completed in the test tower at White Bluffs as of the date of this report. The vertical assembly is ready for the initial drop tests.

Ball 3X System
The test of the ball removal system to be incorporated in the reactor foundation has been assigned the highest priority. Necessary drawings have been completed and work orders issued. This data is required in order to permit the Architect-Engineer to issue complete drawings of the foundation as required for construction.

Instrumentation
The procurement of the instruments for the "C" facility was initiated by the Instrument Section of the Power and Mechanical Divisions.

Water Recirculation Tests
The test set-up was operated very successfully during the month. After the satisfactory operation was definitely established, the tests were discontinued because of the need for test manpower on higher priority projects.

Pressure Drop in Nozzles of Pigtails
Tests to determine the pressure drop were initiated during the month. These results will be applied directly to the new "C" facility.

Site Selection
The site selected by the Power and Mechanical Divisions was located in the existing "D" area. This location was approved by the Reactor Working Committee.

III. PERSONNEL
A. P. Nicholson was transferred from the Separations Division (and was appointed Construction Engineer for Project C-431-B.

Employees on Payroll:

FEBRUARY

Beginning	End	Net Change
43	43	0

14

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I. SUMMARY

Delayed stainless steel deliveries and corrosion test failures of plate, pipe and fittings is becoming critical with regard to both vessel fabrication and field construction. Every effort is being made to utilize all material delivered by substituting poorer material in process streams where corrosion service is not extreme. This situation is particularly critical on Project C-361 and C-362.

Project Proposals for Projects C-417 and C-418, Additional Waste Storage Facilities, were delivered to the Manufacturing Division January 30 for transmission to the AEC. Approximately one third of the carbon steel required for tank liners was ready for shipment February 27. It is expected that a construction contract will be awarded in March.

II. STATISTICAL AND GENERAL

A. Project C-187-D - Redox Production Plant

Power and Mechanical Division design work is approximately 99% complete and Separations Division design work on 241-S Tank Farm Facility is completed.

During the month, scope approval was obtained on the method to be used in installing the silver reactor for removal of radio iodine from dissolver off gases. The reactor unit design was completed and requisitior for engineered items were processed. Design of jumpers, dunnages, etc., is progressing satisfactorily.

As of February 20, 42% of the major equipment items required for the redox cells had been delivered or shipped. The balance will be completed during April. This "completion is subject to acceptance by G. E. Inspection, however, and present indications are that a number of vessels involved may not measure up to standards tolerance-wise.

Delayed delivery and corrosion test failures of stainless steel fittings such as elbows, tees, flanges, etc., is becoming critical with regard to field construction. This problem has been and will continue to be reviewed from the standpoint of utilizing all material on hand and placing substitutes and poorer material in process streams where it will do the least harm.

Approximately 96.5% of the concrete to be poured in the 202-S Building was placed by February 23. Pouring of floors for the service side is nearing completion. Pouring of concrete in the silo region of the building has progressed to the Feed Gallery floor level at the North and where progress has been less impeded by "U" frame placement. All upper "U" frames have now been installed so Silo concrete progress is expected to accelerate during the coming month.

Coil finishing operations were started and are in progress at this writing.

Piping work is progressing satisfactorily in the galleries and aqueous make-up region. Virtually all Class II vessels for the aqueous make-up regions had been shipped or were on the site at the end of the month. Most vessels which have been received are installed.

The hot pipe tunnel work expanded rapidly during the month. As of February 23 approximately 54% of the piping work was completed.

The scheduled progress as of this date is 69.7% as compared with 59% actual. The increased lag between scheduled and actual progress over the comparable difference last month is due in main to delays in delivery of purchased equipment.

B. Project C-187-E - Redox Analytical and Plant Assistance Laboratory

Construction of the Laboratory is 87% complete, 10.5% behind schedule, the Waste Disposal System is 85% complete, 7% behind schedule. The over-all project is 86.6% complete, 10% behind schedule. The major delinquent items are laboratory furniture, hoods and filter canopies.

The delay due to the strike in the sheet metal shop in a sub-vendors plant doing part of the fabrication on the hoods and filter canopies has been resolved by obtaining the material from the shop and having Atkinson & Jones do the fabrication. No definite information is available at the present time as to when delivery can be obtained on the hoods and filter canopies with this arrangement, but every effort is being made to speed fabrication

C. Project C-198 - 234-5 Facility

	Percent Complete		
	Basic Design	Overall Design	Construction
Phases II & III (Richland)	86%	76%	67%
Phase III (Schenectady)	-	-	95.7%

The construction subcontractor has prepared and presented schedules for the remaining project work and indications are that the schedules will be met with RMA Line ready for turn-over to the Operating Divisions by July 1, 1951. All of the Development Laboratory has been completed except Rooms 185, 189, and 179, and have been accepted by the Using Division.

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Approval of the Crucible Shop has been received from AEC and a covering directive from the Manufacturing Division is expected shortly. When this is received a Work Release will be issued to the construction subcontractor to proceed with all remaining project work except those items not to be done, such as TC cleanup and the Locker Room.

Latest information from Schenectady on shipment of remaining equipment items indicates extension of previous shipping schedule through the month of March with last shipment March 31, 1951. This delay is due largely to emphasis being placed on requirements for Project C-413.

D. Project C-361 - Metal Conversion

Scope	100%
Detailed Plans	96.7%
Construction	1.8%

Procurement has been initiated on all known design-procured items except equipment required for alteration of the general building ventilation.

E. Project C-362 - Waste Metal Recovery Facilities

Phase	I	II	III	IV	V	VI	Total
% Scope	100	95	100	100	100	100	98.6
% Design	98	50	100	82	100	75	76.5
% Construction	17.6	.2	43.1	3.3	99.5	.5	12.7

All major equipment items have been requisitioned.

During this month the procurement of stainless steel has changed in outlook considerably. The major factors contributing to a change in this picture are:

(a) A rescheduling of production by Columbia Steel, which delayed the receiving date of some of our material by as much as 60 days.

(b) A large percentage of the production of Allegheny Ludlum, which was delivered to us during this month, failed very badly in corrosion tests.

F. Project C-413 - Expansion of 234-5 Facilities

	Percent Complete		
	Basic Design	Overall Design	Construction
Richland	8%	2%	1%
Schenectady	-	-	23%

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A Project Proposal for C-413, HDC-2024, was delivered to the Manufacturing Division February 14 for transmittal to the AEC. Estimated total cost for the project was $6,325,000. Negotiations with the construction subcontractor are presently underway. The comparative estimates for this negotiation were very close and a contract is expected next month. Use of a Letter Modification to the existing contract as a means to initiate construction work in addition to procurement has not been successful since the subcontractor is unwilling to proceed without prior agreement on complexity of work. The effect of this unexpected delay is not measurable at this time. ORC number 213, has been set up by the Commission to cover shipping charges of C-413 equipment.

In addition to our Liaison representative in Schenectady one additional Separations Division Project representative is in Schenectady helping the Laboratory organize and prepare a Design List for the Project. This help has slowed print handling and design list preparation here but overall improvement should obtain.

G. Projects C-417 & C-418 - Additional Waste Storage Facilities - 241-BZ & 241-TY.

Project Proposals for C-417 and C-418 were delivered to the Manufacturing Division January 30 for transmission to the AEC.

Design drawings, except for minor reinforcing steel details are 97% complete and are sufficient for bid assembly purposes.

Data for inclusion in special provisions of the bid assemblies for the 241-BZ and 241-TY construction work was submitted to the Contract Division February 23.

Overall design of all facilities is 67% complete.

One-third of the Total tonnage of steel required for tank liners is ready for shipment.

III. PERSONNEL

Employees on Payroll:

February		
Beginning	End	Net Change
114	110	-4

[redacted]

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PROJECT & RELATED PERSONNEL — FEBRUARY 1951

	1-31-51	2-28-51
GOVERNMENT EMPLOYEES		
Civilian Personnel -Atomic Energy Comm.	341	344
Civilian Personnel-. G. A. O.	7	7
Total	348	351
RICHLAND VILLAGE PERSONNEL		
Comm. Facilities (Inc. No. Richland)	1097	1089
Govn. Agency, Churches, Clubs, etc.	81	81
Schools	386	388
Organizations	10	11
Total	1574	1569
CONSTRUCTION SUB-CONTRACTORS		
Atkinson & Jones	3965	3933
Newberry Neon	394	415
Urban, Smyth, Warren Co.	241	330
Hanley & Co.	593	679
Kellex Corp.	425	395
No. Elect. Mfg. Co.	2	2
J. Gordon Turnbull	4	4
Edmond P. Erwin	14	14
J. P. Head	6	8
Royal Co. Inc.	23	35
Fred J. Early, Jr.	39	47
Steel Const. Co. & Gilmore Fabricators Inc.	78	70
V. S. Jenkins	21	21
Empire Electric Co.	4	6
Morrison & Knudsen Co. Inc.	54	60
Associated Engrs. Inc.	8	9
Asbestos Supply Co., Seattle	4	0
Johnson Service	2	2
Monterey Co. Plumbing Co.	17	21
Montgomery Elevator Co.	2	0
Thorgaard Plumbing & Heating Co.	2	2
L. E. Baldwin & Frank Dunham Co.	82	85
Virgil L. Anderson	2	3
Hauserman	17	26
X-Ray Products	17	14
American Pipe & Const.	6	6
Judd Co. Inc.	5	4
Chicago Bridge & Iron	0	11
Valley Roofing Co.	0	6
Gement Gun Const. Co.	0	5
Star Sheet Metal Works	0	1
Williams Glass Co.	0	2
Montgomery Electric Co.	0	3
Sound Const. & Engr. Co.	0	18
Total	6027	6237
General Electric Total	7950	8027
GRAND TOTAL	15,899	16,184

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