

# Lawrence Berkeley National Laboratory

## Recent Work

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*Radiation  
Laboratory*

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**UNIVERSITY OF CALIFORNIA**

**Radiation Laboratory  
Berkeley, California**

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**LIST OF UNCLASSIFIED REPORTS RECEIVED AND ISSUED BY THE UCRL  
INFORMATION DIVISION DURING THE PERIOD OF FEBRUARY 15 - 28, 1958**

**March 4, 1958**

LIST OF CODES FOR REPORT NUMBERS

|         |                                                                          |
|---------|--------------------------------------------------------------------------|
| ACCO    | -American Cyanimid Company                                               |
| AEP     | -Monsanto Chemical Company                                               |
| AERE    | -Gt. Brit. Atomic Energy Research Establishment, Harwell, Berks. England |
| ALCO    | -American Locomotive Company                                             |
| AMF     | -American Machine & Foundry Co.                                          |
| ANL     | -Argonne National Laboratory                                             |
| ANP     | -Aircraft Nuclear Propulsion Project                                     |
| APEX    | -General Electric Company, ANP Project                                   |
| ASTIA   | -Armed Services Technical Information Agency, Dayton, Ohio               |
| BAW     | -Babcock & Wilcox                                                        |
| BDX     | -Bendix Aviation Corp., Detroit                                          |
| BMI     | -Battelle Memorial Institute                                             |
| BNL     | -Brookhaven National Lab.                                                |
| BRB     | -Bridgeport Brass Company                                                |
| BSC     | -Bethlehem Steel Company                                                 |
| CENP    | -Combustion Engineering, Inc.                                            |
| CERN    | -European Organization of Nuclear Research, Geneva                       |
| COO     | -Chicago Operations Office                                               |
| CU      | -Columbia University                                                     |
| DCDE    | -Atomic Power Development Associates                                     |
| DLWK    | -Duquense Light Co-Walter Kidde                                          |
| DOW     | -Dow Chemical Company                                                    |
| DP      | -E.I. duPont de Nemour & Co.                                             |
| FWE     | -Foreign Weapons Effects                                                 |
| GAT     | -Goodyear Atomic Corporation                                             |
| GEAP    | -General Electric Company                                                |
| GEL     | -General Electric Co., General Engineering Laboratory                    |
| HEC     | -Hooker Electrochemical Co.                                              |
| HO      | -Hanford Operations Office                                               |
| HW      | -Hanford Works, Richland                                                 |
| IDO     | -Idaho Operations Office                                                 |
| ISC     | -Iowa State College                                                      |
| K       | -Carbide and Carbon Chemicals Co. (K-25 Plant)                           |
| KAPL    | -Knolls Atomic Power Laboratory                                          |
| KLX     | -The Vitro Corporation of America                                        |
| KLXS    | -Vitro Corporation of America (Study Group)                              |
| KY      | -Carbide and Carbon Chemicals Co. (C-31 Plant)                           |
| LA&LAMS | -Los Alamos Scientific Lab.                                              |
| MCW     | -Mallinckrodt Chemical Works                                             |
| MIT     | -Massachusetts Inst. of Tech.                                            |
| MLM     | -Mound Laboratory                                                        |
| NAA-SR  | -North American Aviation, Inc.                                           |
| NBL     | -New Brunswick Laboratory                                                |
| NBS     | -National Bureau of Standards                                            |
| NEA     | -Foster Wheeler-Pioneer Service                                          |
| NLCO    | -National Lead Company of Ohio                                           |
| NMI     | -Nuclear Metals Inc.                                                     |
| NNSD    | -Newport News Shipbuilding and Dry Dock Co.                              |
| NPG     | -Commonwealth Edison Co. (Nuclear Power Group)                           |
| NRL     | -Naval Research Laboratory, Washington D.C.                              |
| NYO     | -New York Operations Office                                              |
| ORINS   | -Oak Ridge Institute of Nuclear Studies                                  |

|        |                                                                 |
|--------|-----------------------------------------------------------------|
| ORNL   | -Carbide & Carbon Chemicals Co. (ORNL)                          |
| ORO    | -Oak Ridge Operations Office                                    |
| PWAC   | -Pratt & Whitney Aircraft Division of the United Aircraft Corp. |
| RFP    | -Rocky Flats Plant                                              |
| RME    | -Grand Junction Operations Office                               |
| RMO    | -Division of Raw Materials                                      |
| SAN    | -San Francisco Operations Office                                |
| SC     | -Sandia Corporation                                             |
| SEP    | -Sylvania Electric Products, Inc.                               |
| SFO    | -Santa Fe Operations Office                                     |
| SRO    | -Savannah River Operations Office                               |
| SO     | -Schenectady Operations Office                                  |
| TEI(M) | -U. S. Geological Survey Trace Elements Reports                 |
| TID    | -Technical Information Service                                  |
| TVA    | -Tennessee Valley Authority                                     |
| UCLA   | -University of California Medical Research Laboratory           |
| UCRL   | -University of California Radiation Laboratory                  |
| UR     | -University of Rochester                                        |
| USNRDL | -U.S. Naval Radiological Lab., San Francisco, Calif.            |
| UWFL   | -University of Washington Applied Fisheries Laboratory          |
| WAPD   | -Westinghouse Electric Corp., Bettis Plant                      |
| WASH   | -AEC, Washington                                                |
| WEC    | -Westinghouse Electric Company Industrial Atomic Power Group    |
| WIN    | -National Lead Co., Inc. Winchester                             |
| WT     | -Weapon Test Reports                                            |
| Y      | -Carbide and Carbon Chemicals Company (Y-12 Plant)              |

Many prefixes used for research and development reports cover a number of installations. NP ("Non-Project") numbers are assigned by the Technical Information Service at Oak Ridge to those reports which it received from sources not under contract to the Atomic Energy Commission. The UCRL Information Division gives "Misc" numbers to any others received here that do not bear an identifying number. Many reports are grouped together under numbers corresponding to an AEC division or operations office. Some of these are as follows:

|          |                                       |
|----------|---------------------------------------|
| CO,COO   | -Chicago Operations Office            |
| IDO      | -Idaho Operations Office              |
| NYO,NYOO | -New York Operations Office           |
| ORO      | -Oak Ridge Operations Office          |
| RMO      | -Raw Materials Division               |
| WASH     | -Atomic Energy Commission, Washington |

In our semimonthly "List of Reports Received" the originating installation will be placed in the author column whenever the report code number does not indicate a specific laboratory, or is obsolete or not given in the list.

Two series of translations are currently received, one sponsored by the AEC (AEC-tr), the other by the National Science Foundation (NSF-tr).

LIST OF UNCLASSIFIED REPORTS RECEIVED AND ISSUED BY THE UCRL  
INFORMATION DIVISION DURING THE PERIOD OF FEBRUARY 15-28, 1958

Radiation Laboratory  
University of California  
Berkeley, California

March 4, 1958

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| <u>BIOSCIENCES</u>  |                                                                                                       |                                                                                                              |             |
| AERE-HP/R-2354      | The World-Wide Deposition of Long-Lived Fission Products from Nuclear Test Explosions                 | N. Stewart,<br>R. Osmond,<br>R. Crooks, et al.<br>Gt. Brit. Atomic Energy<br>Res. Est., Harwell, Berks, Eng. | 10-57       |
| ANL-5808            | Environmental Radioactivity at Argonne National Laboratory                                            | J. Sedlet                                                                                                    | 1-58        |
| HW-54128            | Calculations on Environmental Consequences of Reactor Accidents. Interim Report                       | J. W. Healy                                                                                                  | 12-11-57    |
| LAMS-2038           | A Survey of Some Los Alamos County Canyons for Radioactive Contamination, Spring 1953 to Spring 1955. | A. O. Dodd                                                                                                   | 4-56        |
| NYO-4480            | Semi-Annual Report [for] January 1 through June 30, 1957. Part I. Research.                           | Atomic Bomb<br>Casualty Commission.<br>Hiroshima                                                             |             |
| ORNL-2292(Vol. 2)   | A Monte Carlo Calculation of Air-Scattered Gamma Rays                                                 | R. E. Lynch,<br>J. W. Benoit,<br>W. P. Johnson, et al.<br>Oak Ridge National Lab. (Tenn.)                    | 2-12-58     |

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| ORNL-2292(Vol. 3) | A Monte Carlo Calculation of Air-Scattered Gamma Rays.                                                 | R. E. Lynch,<br>J. W. Benoit,<br>W. P. Johnson, et al.<br>Oak Ridge National Lab., (Tenn.)     | 2-12-58  |
| ORNL-2292(Vol. 4) | A Monte Carlo Calculation of Air-Scattered Gamma Rays                                                  | R. E. Lynch,<br>J. W. Benoit,<br>W. P. Johnson, et al.<br>Same                                 | 2-12-58  |
| ORNL-2292(Vol. 5) | A Monte Carlo Calculation of Air-Scattered Gamma Rays                                                  | R. E. Lynch<br>J. W. Benoit,<br>W. P. Johnson, et al.<br>Same                                  | 2-12-58  |
| RADC-TN-56-278    | Investigation of X-Radiation Hazards, Measurements, and Shielding of High Power RF Transmitting Tubes. | P. Order,<br>Rome Air Development<br>Center, Griffis, AFB, N. Y.                               | 1-57     |
| RDB(W)/TN-58      | An Anthology of Health Physics Data                                                                    | H. J. Dunster,<br>Gt. Brit. Windscale Works,<br>Sellafield, Cumb., Eng.                        | 10-57    |
| USNRDL-TR-138     | Relative Response of 4-PI Gas Flow Proportional Beta Counters at Several Laboratories                  | D. Sam,<br>P. E. Zigman,<br>J. L. Mackin,<br>Naval Radiological<br>Defense Lab., San Francisco | 12-30-57 |
| FWFL-50           | Land Crabs and Radioactive Fallout at Eniwetok Atoll                                                   | E. E. Held,<br>Washington Univ.,<br>Seattle. Applied Fisheries Lab.                            | 5-27-57  |
| AECD-RD-3         | Radiation Monitoring Report                                                                            | J. W. Lebourveau,<br>Yankee Atomic Electric Co.,<br>Boston                                     | 9-23-57  |

CHEMISTRY

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| A-2362         | Experience in the Use of Stedman Packing                                                                                                | H. B. Higgins,<br>T. G. Stack,<br>J. E. Wolf, et al.<br>Standard Oil Co. of<br>Indiana, Chicago | 1-28-46 |
| AERE-C/M-207   | The Effect of Radiation on the Electrical Properties of Anion Exchange Membranes                                                        | G. C. Barker,<br>A. W. Gardner                                                                  | 9-7-54  |
| AERE-C/M-233   | The Separation by Cation Exchange of Small Quantities of Calcium from the Products of its Neutron Irradiation                           | M. J. Cabell                                                                                    | 9-57    |
| AERE-C/R-2320  | The Co-ordination Chemistry of Uranium. A Critical Review                                                                               | A. E. Comyns                                                                                    | 8-57    |
| AERE-C/R-2325  | The Fast Separation of the Alkali Metals                                                                                                | E. A. C. Crouch,<br>J. A. Corbett,<br>H. H. Willis                                              | 10-57   |
| AERE-C/R-2391  | The Distillation of Liquid Metal (Bismuth) Reactor Fuel                                                                                 | F. S. Martin,<br>R. E. Brown,                                                                   | 9-57    |
| AERE-CE/R-2100 | Liquid-Liquid Extraction. Part 13. The Effect of Pulse Waveform and Plate Geometry on the Performance and Throughput of a Pulsed Column | J. D. Thornton                                                                                  | 5-57    |
| AERE-CE/R-2215 | The Preparation and Properties of the Chlorides of Uranium, Plutonium, and Thorium, and of the Fission Product Chlorides                | D. Bradley                                                                                      | 8-54    |
| AERE-GP/R-2282 | The Preparation of Anhydrous Inorganic Chlorides by Dehydration with Thionyl Chloride                                                   | J. H. Freeman,<br>M. L. Smith                                                                   | 8-57    |

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| ANL-5007(Del.)     | Recovery of Uranium from Ore Concentrates                                                                                                                                             | I. Sheft,<br>H. H. Hyman,<br>J. J. Katz                     | 3-53    |
| ANL-5824           | Reactions Yielding Volatile Oxides at High Temperatures;<br>Free Energies of Gaseous $Al_2O_3$ , $ZrO_2$ , $ThO_2$ , $Ta_2O_5$ , $ZrO_2$ ,<br>$ThO_2$ , $Ta_2O_5$ , $UO_2$ and $WO_3$ | R. J. Ackermann,<br>R. J. Thorn                             | 1-58    |
| OCF-50-2-55        | Process for the Recovery of $U^{235}$ Reactor Fuel for Arco<br>Chemical Areas                                                                                                         | C. E. Larson,<br>Oak Ridge National Lab., Tenn.             | 2-7-50  |
| OCF-51-4-155       | Uranium Ores Recovery Pulse Column Tests                                                                                                                                              | A. C. Jealous,<br>Same                                      | 4-26-51 |
| OCF-55-5-34(Del.)  | 25 Process Assistance for Period of April 18, 1955 to<br>April 29, 1955                                                                                                               | F. L. Culler,<br>Same                                       | 5-5-55  |
| OCF-55-7-138(Del.) | Chemical Technology Division, Unit Operations Section<br>Monthly Progress Report [for] July 1955                                                                                      | W. K. Eister,<br>Same                                       | 7-55    |
| OCF-55-8-76(Del.)  | Heat Transfer in Waste Basins                                                                                                                                                         | S. H. Jury,<br>Same                                         | 8-11-55 |
| OCF-56-2-161(Del.) | Removal of Carbon from $UF_4$ Pellets by Oxidation                                                                                                                                    | L. M. Ferris,<br>Same                                       | 2-29-56 |
| OCF-56-5-197       | Chemical Technology Division, Unit Operations Section<br>Monthly Progress Report [for] May 1956                                                                                       | W. K. Eister,<br>J. T. Long,<br>E. O. Nurmi, et al.<br>Same |         |
| OCF-56-9-119       | Thorex: Second Thorium Cycle Manpower and Cost<br>Summary                                                                                                                             | W. R. Winsbro,<br>B. F. Bottenfield,<br>Same                | 9-24-56 |
| OCF-57-10-6        | Lithium Symposium. Analytical Procedures and High-<br>Temperature Corrosion. Reading List                                                                                             | E. E. Hoffman,<br>D. H. Jansen,<br>Same                     | 1-20-58 |

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| DP-247    | The Determination of Fluoride in Plutonium Fluorides                                                     | B.B. Murray                                                                           | 11-57    |
| HW-11885  | Neutralization of $\text{HNO}_3$ in Redox ICU and IAW Streams                                            | M.H. Curtis                                                                           | 12-10-48 |
| HW-52000  | Plutonium Recycle Program. Annual Report [for] Fiscal Year 1957                                          |                                                                                       | 9-20-57  |
| IDO-14408 | Recovery of Fission Products from Calcined First Cycle Solvent Extraction Wastes                         | E.S. Grimmett,<br>Phillips Petroleum Co.<br>Atomic Energy Div.,<br>Idaho Falls, Idaho | 6-26-56  |
| IDO-16354 | Examination of Boron Content in ETR 1-4 Fuel Element by Means of Fuel Scan and Transmission Measurements | W.C. Francis,<br>Same                                                                 | 5-25-56  |
| IDO-28007 | Determination of Burnout Limits of Polyphenyl Coolants                                                   | T.C. Core,<br>K. Sato,<br>Aerojet General Corp.,<br>Azusa, Calif.                     | 2-14-58  |
| SC-874    | Flow of an Aqueous Slurry Through a Vertical Tube                                                        | H.E. Wolfe,<br>G. Murphy,<br>Ames Lab.,<br>Ames, Iowa                                 | 3-57     |
| SC-908    | Mass Transfer in Low Velocity Gas Streams                                                                | J.E. Frandolig,<br>R.W. Fahien,<br>Same                                               | 6-57     |
| KAPL-1827 | Three-Channel Alpha Fission Counter                                                                      | F.A. White,<br>J.C. Sheffield                                                         | 7-1-57   |
| LA-1692   | Calcium Oxalate Carrier Precipitation of Pu                                                              | W.J. Maraman,<br>A.J. Beaumont,<br>E.L. Christensen, et al.                           | 2-25-54  |

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| LA-1699                      | Plant-Scale Concentration of Am and Pu III Using Tributyl Phosphate                                                                                | W. J. Maraman,<br>A. J. Beaumont,<br>R. S. Day, et al.                                     | 8-2-54   |
| LA-1869                      | Some Observations on the Reactivity of Plutonium Dioxide                                                                                           | C. W. Bjorklund,<br>E. Staritzky                                                           | 11-1-54  |
| MIT-LNS-PR-<br>Aug. 31, 1957 | [Fiftieth] Progress Report [For Period June 1, 1957 to August 31, 1957.]                                                                           | Massachusetts<br>Inst. of Tech.,<br>Cambridge Lab. for Nuclear Science                     | 8-31-57  |
| MLM-534                      | Status of Polonium Distillation Unit. (Information Report)                                                                                         | R. W. Endebrook                                                                            | 1-25-51  |
| MLM-1024                     | Special Applications of Quartz Fibers; The Fabrication and Use of Microtubing and Helices                                                          | M. I. Gray,<br>R. G. Olt                                                                   | 12-7-54  |
| NAA-AL-1840                  | Properties of Resistance Spotwelded 24S-T2 and 75S-T6 Aluminum Alloy Sheet and 17-7PH Stainless Steel Sheet at Depressed and Elevated Temperatures | E. J. Pelochino,<br>J. R. Bellah,<br>North American Aviation,<br>Inc., Downey, Calif.      | 2-1-54   |
| NACA-TN-4111                 | Investigation of the Compressive Strength and Creep of 7075-T6 Aluminum-Alloy Plates at Elevated Temperatures                                      | W. D. Deveikis,<br>Langley Aeronautical Lab.,<br>Langley Field, Va.                        | 11-57    |
| NBS-5325                     | Reactions of the Glycosylamines                                                                                                                    | H. S. Isbell,<br>H. L. Frush                                                               | 12-1-57  |
| NP-6463                      | The Fluorination of Carbides. Final Report                                                                                                         | J. R. Aronson,<br>Mass. Inst. of Tech.,<br>Cambridge                                       | 10-15-57 |
| NP-6464                      | Research and Development of Hi-Temperature Nuclear Radiation Resistant Elastomers                                                                  | P. Davis,<br>U. F. Nager,<br>R. E. Isley, et al.<br>Burke Research Co.,<br>Van Dyke, Mich. | 10-8-57  |
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| NP-6472                        | The Determination of Hydrogen in Titanium and Its Alloys--<br>A Critical Review                           | T. D. McKinley,<br>Battelle Memorial Inst.<br>Titanium Metallurgical Lab.,<br>Columbus, Ohio                                              | 9-23-57 |
| NP-6479                        | Graphite Technology. Progress Report No. 3 for the<br>Period August 1, 1957 to October 1, 1957            | S. W. Bradstreet,<br>Illinois Inst. of Tech.,<br>Chicago. Armour Research<br>Foundation                                                   | 10-1-57 |
| NYO-5189                       | The Loss on Ignition Test for Purified Uranium Trioxide                                                   | R. W. Bragdon,<br>C. L. French,<br>G. L. Martin,<br>Mallinckrodt Chemical<br>Works, St. Louis                                             | 7-46    |
| ORNL-2451                      | Chemical Technology Division. Progress Report on Raw<br>Materials for October, 1957                       | K. B. Brown,<br>C. F. Coleman,<br>D. J. Crouse, et al.                                                                                    | 2-13-58 |
| SCTM-52-57(16)                 | Dry-Film Lubricant Studies                                                                                | L. M. Berry,<br>Sandia Corp.,<br>Albuquerque, N. Mex.                                                                                     | 3-28-57 |
| WADC-T/R-57-<br>585(AD-131084) | Research to Investigate the Feasibility of Electron<br>Mirror Microscopy in the Study of Magnetic Domains | L. J. Mayer,<br>General Mills, Inc.,<br>Minneapolis                                                                                       | 9-57    |
| WIN-51                         | Four Corners Uranium Company Ore                                                                          | J. B. Breyman,<br>T. J. Sentementes,<br>H. I. Viklund, et al.<br>National Lead Co., Inc.,<br>Ray Materials Development Lab.<br>Winchester |         |

ENGINEERING

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| *AECU-3448    | Effect of Edge Roundness on Drag of Bluff Two-Dimensional Bodies                 | D. M. Hankins,<br>Sandia Corp.,<br>Albuquerque, N. Mex.                                     | 10-15-56 |
| AERE-R/R-2275 | Analysis of Experimental D. C. Pump Performance and Theory of Design             | D. A. Watt                                                                                  | 7-57     |
| AERE-R/R-2375 | The Development and Operation of a 10KW Homopolar Generator with Mercury Brushes | D. A. Watt                                                                                  | 10-57    |
| CF-57-9-33    | The Performance of a Small Helical Tube Heat Exchanger                           | C. V. Chester,<br>Oak Ridge National Lab.,<br>(Tenn.)                                       | 12-19-57 |
| *NP-6476      | Burnout in Forced Convection Nucleate Boiling of Water. Technical Report No. 10  | J. M. Reynolds,<br>Mass. Inst. of Tech.,<br>Cambridge. Heat<br>Transfer Lab.                | 7-1-57   |
| *NP-6477      | Description of Boiling Project Burnout Detector. Technical Report No. 11         | M. W. Raymond,<br>J. M. Reynolds,<br>Mass. Inst. of Tech.,<br>Cambridge. Heat Transfer Lab. | 7-1-57   |
| *NP-6487      | Design Report--Closed Cycle Gas-Turbine Test Facility                            | Sanderson and Porter,<br>New York                                                           | 2-57     |
| *SC-4104(TR)  | Airflow Calibration of the Sandia Corporation 12-Inch Transonic Wind Tunnel      | M. W. Davis,<br>K. A. Petersen,<br>Sandia Corp.,<br>Albuquerque, N. Mex.                    | 6-57     |
| SC-4127(TR)   | Effect of Jet Density on Induced Flow Around an Axially Symmetric Jet            | F. G. Blottner,<br>Same                                                                     | 10-57    |
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GEOSCIENCES

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| ORO-167 | An Investigation of the Chattanooga Black Shale of Tennessee as a Source of Uranium. Progress Report for July 1, 1956 to June 30, 1957 | H. J. Klepser,<br>Tennessee Univ., Knoxville | 8-1-57 |
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METALLURGY AND CERAMICS

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| A-2388          | Development of Niobium Base Alloys. Fifth Quarterly Report                                                                       | R. T. Begley,<br>Westinghouse Electric Corp. Aviation Gas Turbine Div.,<br>Kansas City, Mo. | 6-1-57  |
| *A-4048         | Developments in Cutting and Machining Uranium at the Iowa State College Laboratory                                               | C. F. Gray,<br>Ames Lab., Ames, Iowa                                                        | 1-46    |
| *AECU-3445      | Volume Resistance-Temperature Characteristics of PZT (53% Lead Zirconate and 43% Lead Titanate Composition by Molecular Weight). | M. A. Uman,<br>Sandia Corp., Albuquerque, N. Mex.                                           | 8-31-56 |
| AERE-M/R-1156   | The Tensile Properties of Uranium from Room Temperature to 600°C                                                                 | N. H. Hancock                                                                               | 3-23-53 |
| AERE-M/R-2306   | Surface Structure of Slip Bands in Copper Fatigued at 293°K, 90°K, 20°K and 4.2°K                                                | D. Hull                                                                                     | 6-57    |
| AERE-M/R-2323   | Some Studies on Thermal Gradient Transfer in Bismuth                                                                             | J. W. Taylor,<br>M. Vevers                                                                  | 8-57    |
| *ANL-4316(Del.) | Metallurgy Division Report for January, February, and March 1949                                                                 |                                                                                             | 3-31-49 |
| ANL-5559        | The Fabrication of Fuel Subassemblies for the Borax-III Reactor                                                                  | D. E. Walker,<br>R. A. Noland                                                               | 1-58    |

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| ANL-5736          | Irradiation of Uranium-Fissium Alloys and Related Compositions                                                                | K. F. Smith                                                                                             | 9-57     |
| ANL-5825          | Irradiation Effects on Zirconium-Clad Uranium-Zirconium Fuel Plates                                                           | R. E. Bailey                                                                                            | 2-58     |
| BMI-1249          | The Effect of Primary Alpha on the Beta Decomposition of Zirconium-Uranium-Oxygen Alloys                                      | D. L. Douglass,<br>L. L. Marsh, Jr.                                                                     | 1-14-58  |
| *CF-50-6-26(Del.) | Radiation Damage. Chapter IV, Part 1                                                                                          | G. E. Evans,<br>[Oak Ridge Nation Lab., Tenn.]                                                          | 6-7-50   |
| CF-58-1-93        | The Reactions of Magnesium and Magnesium Alloys with Gases at High Temperatures                                               | H. Inouye,<br>Oak Ridge National Lab., (Tenn.)                                                          | 1-20-58  |
| *HW-26692(Del.)   | Interim Report on Examination of Powder Metallurgy Slug From PT-105-313-4M                                                    | D. P. O'Keefe                                                                                           | 1-5-53   |
| HW-54364          | Mechanical Properties of Aluminum Alloy M-388; Effect of Fabrication Variables                                                | R. S. Kemper,<br>K. F. Powell                                                                           | 1-6-58   |
| IGRL-T/C-43       | Irreversible Changes in Length of Zinc Under Thermal Stress Trans. from Zeitschrift für Metallkunde <u>46</u> , 582-8 (1955). | K. Claus,<br>K. Löhberg,<br>Gt. Brit. Culcheth Labs.,<br>Culcheth, Lancs, England                       |          |
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| *NAVORD-2055 | Rapid-Heating Stress-Rupture Properties of Several Engineering Alloys                                                    | A. T. Robinson,<br>J. D. Ramsdell,<br>Naval Ordnance Test<br>Station, Inyokern (China Lake),<br>California    | 9-2-53   |
| *NAVORD-3403 | Relation of High-Heating-Rate Tests to Very-Short-Time Creep Tests                                                       | W. K. Smith,<br>Same                                                                                          | 3-15-55  |
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| *NEPA-1282   | Development of Apparatus and Methods for Measurement of Creep to Temperatures of 3500°F                                  | M. J. Sinnott,<br>Michigan Univ., Ann<br>Arbor. Engineering Res. Inst.                                        | 1-20-50  |
| *NP-6462     | Report on Powder Metallurgy in USSR                                                                                      | H. H. Hausner,<br>Penn-Texas Corp.,<br>New York                                                               | 9-1-57   |
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| *NP-6466 | Research and Development of Procedures for the Joining of Similar and Dissimilar Heat-Resisting Alloys by Ultrasonic Welding        | N. E. Weare,<br>R. E. Monroe,<br>J. N. Antonevich, et al.<br>Battelle Memorial Inst.,<br>Columbus, Ohio                     | 9-30-57  |
| *NP-6470 | Comparison of Thermal Fatigue with Mechanical Fatigue Cycling. Final Report [for] September 1, 1954 to September 1, 1957            | H. Majors Jr.<br>Alabama Univ.,<br>Bureau of Engineering Research                                                           | 9-57     |
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| *NP-6473 | Hydrogen in Titanium and its Alloys                                                                                                 | R. I. Jaffee,<br>Same                                                                                                       | 9-30-57  |
| *NP-6478 | I. An Apparatus for Use with Condensed Phases at 10,000°C. II. Some Thermodynamic and Rate Considerations at very High Temperatures | H. T. Hall,<br>B. Brown,<br>B. Nelson, et al.<br>Brigham Young Univ.<br>Provo, Utah                                         | 9-18-57  |
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| *NP-6486 | Residual Stresses in Welded Titanium Plates. Final Technical Report                                                                 | E. F. Nippes,<br>W. F. Savage,<br>Rensselaer Polytechnic Inst.,<br>Troy, N. Y.                                              | 11-57    |
| NYO-4773 | Measurements of Deformation Resulting from Grain Boundary Sliding in Aluminum and Aluminum-Magnesium Alloys from 410° to 940°F      | H. Brunner,<br>N. J. Grant,<br>Mass. Inst. of Tech.,<br>Cambridge Dept. of Metallurgy                                       | 2-58     |

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| *RDB(C)/TM-215   | Mechanical Properties of Magnesium Alloys in the Range 350°C to 500°C                      | A. Cowan,<br>F. P. Ellen,<br>Gt. Brit. Culcheth Labs.,<br>Culcheth, Lancs, Eng.                                                          |          |
| *RDB(C)TM-233    | Tensile Properties of Some Magnesium Alloys Within the Range 20°C-500°C                    | F. P. Ellen,<br>Same                                                                                                                     | 10-14-54 |
| *RDB(C)/TM-235   | The Stress Rupture Properties of Magnox C at 200°, 250° and 300°                           | A. Cowan,<br>Same                                                                                                                        | 11-9-54  |
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| *TML-82          | The Properties of Titanium Alloys at Elevated Temperatures                                 | F. R. Schwartzberg,<br>F. C. Holden,<br>H. R. Ogden, et al.<br>Battelle Memorial Inst.<br>Titanium Metallurgical Lab.,<br>Columbus, Ohio | 9-10-57  |
| *TML-84          | The Stress Corrosion and Pyrophoric Behavior of Titanium and Titanium Alloys               | D. W. Stough,<br>F. W. Fink,<br>R. S. Peoples,<br>Same                                                                                   | 9-15-57  |
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| *AECU-3444                   | Printed Circuit Methods and Applications                               | D. A. Loren,<br>Same                                                                                                     | 9-10-56  |
| *AECU-3447                   | Normal Incidence Reflection of Dipole Radiation from a Plane Interface | R. K. Moore,<br>Same                                                                                                     | 9-7-56   |
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| *AECU-3476                   | Tables of the Normal Probability Intergral                             | D. B. Owen,<br>D. T. Monk,<br>Same                                                                                       | 3-25-57  |
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| AECU-3595                    | Surface Fluxes and Currents for Various Shielded Radiation Sources     | E. R. Cohen,<br>F. B. Estabrook,<br>Atomica International Div.,<br>North American Aviation, Inc.,<br>Canoga Park, Calif. | 10-1-57  |
| AERE-GP/R-2184<br>Microcards | Resonant Cavity Measurement Techniques at 400 Mc/s                     | W. Boyd                                                                                                                  | 8-57     |

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| AERE-GP/R-2189               | Gas Scattering in Proton Synchrotrons with Variable Rate of Acceleration                         | R. J. Hadden,                                                                       | 8-57    |
| AERE-RP/M-40                 | The Temperature Coefficient of Reactivity Due to Thermal Expansion of a Reflected Spherical Core | J. Codd                                                                             | 4-54    |
| AERE-RP/R-2031<br>(Suppl. 1) | Effective Cross Section Data for Thermal Reactor Calculations [Supplement 1]                     | C. G. Campbell,<br>R. G. Freemantle                                                 | 7-57    |
| AERE-T/R-2351                | Methods for a Quadratic Non-Linear Resonance                                                     | D. Morgan,<br>R. Taylor                                                             | 9-57    |
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| CERN-PS/JGL-2                | The Problem of Runaway Electrons in Plasma                                                       | European Organization<br>for Nuclear Research, Geneva                               | 12-57   |
| CERN-PS/JGL-3                | Low Pressure Ring-Discharge in an External Magnetic Field                                        | J. G. Linhart,<br>Same                                                              | 12-57   |
| CERN-PS/MM-33                | Pulsed Excitation of the Models and of Individual Elements of the Magnet                         | Same                                                                                | 11-57   |
| CF-58-1-79                   | Two-Group Constants for Aqueous Homogeneous Reactor Calculations                                 | T. B. Fowler,<br>M. Tobias,<br>Oak Ridge National Lab., (Tenn.)                     | 1-22-58 |
| CREL-741                     | Transistorized Radiation Monitors                                                                | F. S. Goulding,<br>Atomic Energy of Canada Ltd.<br>Chalk River Project, Chalk River | 11-57   |
| CRNE-747                     | Solution of Temperature and Stress Transients by Analogue Computer                               | T. E. Burnup,<br>Same                                                               | 12-5-57 |

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| CRP-745       | The Standardization of Electron Capturing Nuclides; A Preliminary Study                                                                    | P. J. Campion,<br>W. F. Merritt,<br>Atomic Energy of Canada<br>Ltd. Chalk River Project, Chalk River                                | 11-57   |
| CRT-338(Rev)  | The Spherical Harmonics Method. II. (Application to Problems with Plane and Spherical Symmetry)                                            | C. Mark,<br>Same                                                                                                                    | 2-57    |
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| *LA-749       | Polythene-25 Critical Assembly and Neutron Distribution Studies                                                                            | H. C. Paxton,<br>G. A. Linenbarger                                                                                                  | 9-30-49 |
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| LA-2166       | Optimization of Rocket Orbits. Part I. Idealized Calculations                                                                              | K. W. Ford                                                                                                                          | 2-10-58 |
| *LAMS-2082    | The Particle-in-Cell Method for Two-Dimensional Hydrodynamic Problems                                                                      | F. H. Harlow,<br>M. W. Evans,<br>D. E. Harris, Jr.                                                                                  | 8-29-56 |
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| MISC-1958-53   | Research Investigation Directed Toward Extending the Useful Range of the Electromagnetic Spectrum. Eighth Quarterly Progress Report [for] September 16, 1957 through December 15, 1957 | P. Kusch,<br>Columbia Univ.,<br>New York. Columbia Radiation Lab.                                                                            | 12-15-57 |
| MIT-RLE-TR-276 | Characterization of Probability Distributions for Excess Physical Noises. (D.SC. Thesis)                                                                                               | J. Hilibrand,<br>Mass. Inst. of Tech.,<br>Cambridge. Research Lab. of<br>Electronics                                                         | 9-7-56   |
| CMURA-373      | Design of a 50 Mev Electron Radial Sector FFAG Accelerator                                                                                                                             | F. T. Cole,<br>A. M. Sessler,<br>Midwestern Universities<br>Research Assn., Madison, Wis.                                                    | 11-4-57  |
| NAA-SR-1992    | Graphical Aids in the Calculation of the Shielding Requirements for Spent U <sup>235</sup> Fuel                                                                                        | R. L. Ashley,<br>Atomic International Div.,<br>North American Aviation, Inc.,<br>Canoga Park, Calif.                                         | 11-15-57 |
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| WARRF-58-2T       | Effects of Reactor Radiation on the Electrical Properties of Electronic Components. Part III. Batteries and Standard Cells | J. W. Kunzman, Jr.<br>Convair, Fort Worth, Tex.                                                             | 1-17-58  |
| NDA-86-1          | The Neutron Cross Sections of Nitrogen                                                                                     | H. Lustig,<br>H. Goldstein,<br>M. H. Kalos,<br>Nuclear Development Corp.<br>of America, White Plains, N. Y. | 6-30-57  |
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| ONRL-7-58         | Nuclear Physics at Glasgow and Edinburgh                                                                                   | D. J. Zaffarano,<br>Office of Naval Research, (London)                                                      | 1-23-58  |
| ONRL-101-57       | Directory of European Solid State Physicists                                                                               | J. S. Smart,<br>Same                                                                                        | 8-28-57  |
| ORNL-2292(Vol. 2) | A Monte Carlo Calculation of Air-Scattered Gamma Rays                                                                      | R. E. Lynch,<br>J. W. Benoit,<br>W. P. Johnson, et al.                                                      | 2-12-58  |
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| ORNL-2292(Vol. 5) | A Monte Carlo Calculation of Air-Scattered Gamma Rays                                               | R. E. Lynch,<br>J. W. Bencit,<br>W. P. Johnson, et al.                    | 2-12-58  |
| ORNL-2456         | A Modification of the Spherical Harmonics Method in Neutron Transport Theory                        | A. Sauer                                                                  | 2-7-58   |
| SCTM-126-57(51)   | High-Speed Magnetization Versus Magnetic Field Intensity Curves for Various Ferromagnetic Materials | R. W. Kulterman,<br>A. J. Shell,<br>Sandia Corp.,<br>Albuquerque, N. Mex. | 5-17-57  |
| SCTM-195-57(51)   | A Calibrated Raster Generator                                                                       | G. E. Ingram,<br>Same                                                     | 8-27-57  |
| SCTM-232-57(52)   | Tape Data Editor                                                                                    | J. E. Liston,<br>Same                                                     | 9-10-57  |
| SCTM-290-57(52)   | A Miniature VHF Telemetering Transmitter for 28-VDC Operation                                       | L. G. Snyder,<br>Same                                                     | 10-29-57 |
| SCTM-301-57(14)   | Theory of Shunt-Tuned Three-Wire Monopole                                                           | C. W. Harrison, Jr.<br>Same                                               | 10-23-57 |
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| AECG-3596                 | Calculation of Effect of Fuel Burnup on Fuel and Poison Distributions and on Flux Distribution in the Marine Reactor | G. Hinman,<br>General Atomic Div.,<br>General Dynamics Corp.,<br>San Diego, Calif.               | 1-29-57 |
| AERE-R/R-2365             | The Effect of Turbulent Diffusion on Temperature Transients in Liquid Metal Fuel Reactor Pipelines                   | J. J. Thompson                                                                                   | 9-57    |
| ANL-5176(Pt. 6)<br>(Del.) | Reactor Information Meeting, Argonne National Laboratory, October 7, 8, 9, 1953. Papers. Part 6. Processing.         |                                                                                                  |         |
| ANL-5798                  | Power Transfer Functions of the EBWR Obtained Using a Sinusoidal Reactivity Driving Function                         | J. A. DeShong, Jr.                                                                               | 1-58    |
| CEND-0005-RS-17           | Summary of Progress in Unclassified Areas of Reactor Technology                                                      | Combustion Engineering,<br>Inc. Nuclear Div., Windsor, Conn.                                     | 2-6-58  |
| CF-53-1-28                | Studies of Straight Through Models with Multiple Inlet Jets.                                                         | L. B. Lesem,<br>Oak Ridge National Lab., Tenn.                                                   | 1-2-53  |
| CF-57-10-41               | Molten Salts for Civilian Power                                                                                      | H. G. MacPherson,<br>Same                                                                        | 9-10-57 |
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| *LMFS/P-9       | Generalized Albedo Concepts in Two-Group Multi-Region Reactor Problems                                       | J. J. Thompson,                                                                                                                                        | 12-17-56 |
| NAA-SR-1955     | A Further Evaluation of the Calder Hall Type of Nuclear Power Plant                                          | W. F. Banks,<br>Atomics International Div.,<br>North American Aviation, Inc.,<br>Canoga Park, Calif.                                                   | 6-28-57  |
| *NEI-55         | The Detection of Blisters in NRX Fuel Rods by Flow Measurements                                              | E. Siddall,<br>Atomic Energy of Canada Ltd.<br>Chalk River Project, Chalk River, Ont                                                                   | 8-22-55  |
| *NP-6465        | Simulation of a Major Pipe Rupture in a Pressurized Water Reactor Type Plant. Technical Report No. 58        | M. J. McGoff,<br>S. J. Rodgers,<br>J. B. McDonough,<br>MSA Research Corp.,<br>Callery, Penna.                                                          | 10-31-57 |
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| *NURG/M-11      | Uranium Depletion, Plutonium Build-up and Long Term Changes in Reactivity in a Natural Uranium Power Reactor | J. F. Hill,<br>Same                                                                                                                                    | 1-15-52  |
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| ORNL-48        | Temperature Transients in Pippa During the Initial Stages of Divergence                                                                                                    | D. V. Wordsworth,<br>Gt. Brit. Atomic Energy Res. Est.<br>Harwell, Berks, Eng.                         | 1-9-53   |
| ENURG/M-57     | The Effect of Re-Entrant Cooling on the Attainable Temperature Rise Ratio in Gas-Cooled Reactors of the Pippa Type                                                         | J. H. Bowen,<br>Same                                                                                   | 4-14-53  |
| ENURG/M-59     | Effect of Graphite Temperature on Power Sent Out by Pippa                                                                                                                  | J. H. Bowen,<br>Same                                                                                   | 5-12-53  |
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| WAPD-BT-5   | Proposed Equipment for Neutron Flux Measurement in the<br>Calder Works Thermal Reactors                                       | R. J. Cox,<br>G. V. Hough,<br>United Kingdom Atomic Energy<br>Authority. Industrial Group H. Q.,<br>Risley, Lancs, Eng. | 10-4-54 |
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| YAEC-51     | Pressurized Water Reactor (PWR) Project. Technical<br>Progress Report for the Period October 24, 1957 to<br>December 23, 1957 |                                                                                                                         |         |
| YAEC-51     | Monthly Progress Report for the Period December 1st to<br>31st, 1957                                                          | I. H. Coen,<br>R. W. Garbe,<br>Westinghouse Electric<br>Corp. Atomic Power Div.,<br>Pittsburgh                          | 1-20-58 |

MISCELLANEOUS

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| AECU-3450             | High-Explosive Argon Flash Light Source                                                                 | J. Todd, Jr.,<br>D. Parsons,<br>Sandia Corp., Albuquerque, N. Mex. | 1-11-57 |
| ASTA-U58-2            | Technical Abstract Bulletin. Bulletin No. U58-2                                                         |                                                                    | 2-1-58  |
| MSC-1958-52           | Listing of Report Numbers [of] United States Atomic<br>Energy Commission Scientific Document Collection | Atomic Energy<br>Commission,<br>(Washington, D. C.)                | 1-1-58  |
| NACA Abstracts-<br>14 | Research Abstracts and Reclassification Notice No. 124                                                  | National Advisory<br>Committee for<br>Aeronautics                  | 2-10-58 |

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| UCRL-3839 Rev. | Neutrons from (a, n) Sources                                                                                      | Wilmot N. Hess                                    | 12-16-57 |
| UCRL-8013      | Spectrochemical Determination of Strontium-to-Calcium Ratio in Food, Milk, Cream, Blood, Feces, and Urine of Cows | G. V. Shalimoff,<br>J. G. Conway,<br>A. E. Pitzer | 1-58     |
| UCRL-8086      | Cyanide Effects on Carbon Dioxide Fixation in Chlorella                                                           | B. R. Rabin,<br>D. F. Shaw,<br>N. G. Pon, et al.  | 12-17-57 |
| UCRL-8148      | Cherenkov Counters in High-Energy Physics                                                                         | C. Wiegand                                        | 1-21-58  |
| UCRL-8173      | A Four-Gun Oscilloscope for Use in Nuclear Research                                                               | H. G. Jackson                                     | 2-6-58   |

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Information Division

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| UCID-3<br>(7318-25 M1) | Heavy Ion Accelerator Drift Tubes. Post Stripper Magnets, Copper, Power and Water Requirements | R. Young       | 12-14-54 |
| UCID-4<br>(4904-06 M1) | Radiation Shielding-University of Southern California Linac                                    | O. W. Callahan | 11-15-57 |

Alvarez Group

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| 4310-03 LA11 | Relativistic Transformations in Hyperon and K Decay   | F. Crawford | 1-15-58 |
| 4310-03 LA12 | Using a "Biased" Sample to Find Unbiased Track Length | F. Crawford | 2-24-58 |

Electronics

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| EE-532 | Voltage Glow in the 7046 Phototube | Q. Kerna,<br>F. Kirsten | 2-21-58 |
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| 3140-01 M162D                 | Health Chemistry - Automatic Air Filter-Paper Survey Data Reduction Equipment                                            | J. Russell,<br>T. Taussig | 2-26-58 |
| <u>Mechanical Engineering</u> |                                                                                                                          |                           |         |
| 3140-01 M162D                 | Engineering Note Series (Berkeley)                                                                                       | F. Porter                 | 5-10-57 |
| 3140-01 M191                  | 12 Bev Pulsed Air-Core Synchrotron Preliminary Cost Estimate                                                             | R. Burleigh               | 1-28-58 |
| 3140-01 M192                  | Comparison of Recent Magnet Costs                                                                                        | R. Burleigh               | 2-22-58 |
| 4312-04 M10                   | 72 Hydrogen Bubble Chamber Vacuum System 200 PSIG Hydrostatic Test of Vacuum Tank Cover                                  | W. Eaton                  | 2-19-58 |
| 4902-02 M7                    | 184-Inch Cyclotron Operation New Equipment and Components Floor Level Ion Source Track Design and Operating Instructions | W. O. Brunk               | 1-29-58 |
| 4902-02 M8                    | 184-Inch Cyclotron Operation New Equipment and Components Meson Cave Outer Wall Steel Belt                               | W. O. Brunk               | 2-20-58 |
| 4902-02 M9                    | 184-Inch Cyclotron "Orion" Magnetic Measurements                                                                         | A. DuBois                 | 2-24-58 |
| 4902-02 M10                   | 184-Inch Cyclotron "Hector" Magnetization Curves (200 Mev Pair Magnet)                                                   | A. DuBois                 | 2-24-58 |
| 4902-06 M16                   | 184-Inch Cyclotron Modification Vacuum System Recommendations to Reduce Pump-down Time                                   | W. Brunk                  | 9-24-57 |
| 4902-06 M7A                   | 184-Inch Cyclotron Operation Weight Changes in Building 6                                                                | A. DuBois,<br>R. Burleigh | 5-3-57  |
| 4902-06 M18                   | 184-Inch Cyclotron Weight Changes in Building 6 Feb., 1958                                                               | A. O. DuBois              | 2-19-58 |
| 4902-01 M22                   | Disposal of Antiproton Experimental Equipment at Tear-down                                                               | C. G. Larson              | 2-19-58 |