

# Office Memorandum • UNITED STATES GOVERNMENT

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TO : John A. Derry, Executive Officer, ~~40862~~ DATE: September 11, 1950  
 Division of Biology and Medicine

FROM : Robert L. Eutenhoff, Chief, Radiation Instruments *Eutenhoff* **R**  
 Branch, Division of Biology and Medicine

SUBJECT: MONTHLY PROGRESS REPORT FOR THE RADIATION INSTRUMENTS BRANCH,  
 AUGUST 1950

SYMBOL: BIR:JCG

Radiation Instruments Branch

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The first civilian defense type instrument which has become available under the Branch's development program has been tested at the Bureau of Standards for energy dependency and by the Signal Corps at Fort Monmouth, New Jersey for ruggedness and temperature and humidity dependency. Preliminary data indicate that the instrument is quite satisfactory, from both the radiation energy and ruggedness considerations. A procedure has been established whereby other instruments, as they become available, will be given the same tests.

The Steering Committee of the Atomic Energy Commission's Special Tube Development Program met in Princeton, New Jersey for the purpose of formulating a program of research and development to be conducted at the research laboratories of the Radio Corporation of America under AEC contract. Navy representatives attended the meeting and a program of inter-agency coordination was worked out. RCA was given instructions to proceed with the development of two types of photomultiplier tubes, both of which will provide research tools for the AEC scientists, facilitating certain physical measurements which have been either very difficult or actually impossible. Preliminary investigations will also be started on a combination electron gun photomultiplier device for use in the analysis of radiation spectra.

A series of meetings was held between representatives of the Naval Research Laboratory and Atomic Energy Commission personnel to exchange information on halogen filled Geiger counters and on techniques for measuring characteristics of scintillators for use in scintillation counters.

A proposal for the Radiation Instruments Branch's participation in Project Greenhouse has been submitted to Los Alamos. The primary object of this participation will be the field evaluation of civilian defense type instruments being developed under AEC sponsorship. A series of spectral dependency measurements have been made in cooperation with the Bureau of Standards to obtain information required for Project Greenhouse.

| DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW                 |  |
|--|--|
| SINGLE REVIEW AUTHORIZED BY:<br><i>AA Sinsigalli 11/2/94</i> | DETERMINATION (CIRCLE NUMBER(S))<br>1. CLASSIFICATION RETAINED<br>2. CLASSIFICATION CHANGED TO:<br>3. CONTAINS NO DOE CLASSIFIED INFO<br>4. COORDINATE WITH:<br>5. CLASSIFICATION CANCELLED<br>6. CLASSIFIED INFO BRACKETED<br>7. OTHER (SPECIFY): <i>WITH ENCL-OR</i> |
| REVIEWER (ADD):<br>NAME: <i>ML Kousan</i>                    |  |
| DATE: <i>11/7/94</i>   |  |

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*Prog. Rpt.*

I. Procurement and Industrial Development Activities

A. Summary of AEC Procurement Activities for Period August 1, 1950 - August 31, 1950

|  | <u>Accessories</u> | <u>Components</u> | <u>Scalars</u> | <u>Monitors</u> | <u>Personnel</u> | <u>Survey</u> | <u>Total</u> |
|--|--------------------|-------------------|----------------|-----------------|------------------|---------------|--------------|
| Office of Operations Decentralized Procurement - Contracts or purchase orders executed |                    |                   |                |                 |                  |               |              |
| Number of Items  | 0                  | 4                 | 0              | 0               | 0                | 1             | 5            |
| Amount   | 0                  | \$ 614.50         | 0              | 0               | 0                | \$ 143.60     | \$ 758.10    |

B. AEC Sponsored Research and Development

A draft of a staff paper was completed during the period of this report describing the civilian radiological development programs being sponsored by the AEC; the status of the various activities is contained in detail in this paper. The report encompasses both contracts with industry initiated through the Washington Headquarters AEC Procurement Office, the programs underway at five AEC installations and a program being prosecuted at the National Radiological Defense Laboratory at San Francisco.

C. Instrument Appraisal Program

Distribution was completed of 275 copies of Appraisal List No. 2 which contains data concerning 67 items of radiation detection equipment. The listing includes preliminary Catalog sheets descriptive of newly announced commercial products which are being made available for examination by Commission establishments.

D. Catalog

Catalog issue Number 2 is now in the process of being printed and assembled by the Technical Information Division at the Oak Ridge Operations Office. The price has not yet been determined for the new Catalog. The Catalog is scheduled for distribution during the latter part of September or the early part of October.

E. Testing and Inspection

On August 31, the new quarters of the Radiation Instruments Branch inspection, testing, and calibration facilities were

approximately completed. Preparations for the removal of equipment and instruments from the National Bureau of Standards High Voltage Laboratory building to the new storage site have been completed, and it is anticipated that the removal from the NBS building will be accomplished by the middle of September.

F. Procurement Summary

Attachment No. 1 includes a Summary of Status of Supply and Stockpile Procurement for delivery to Commission installations and Naval organizations where the Commission holds Navy contracts accepted by the Atomic Energy Commission. Research and development contracts and Test Purchase Orders are also reported on. The latter contracts and purchase orders differ from the supply procurement in that the services of personnel are a large part of the contract commitment. Where estimated completion dates are indicated on this attachment, requested dates have been used when delivery information has not been furnished by the contracting office or the contractor.

II. Technical Coordination Activities

A. Branch Publications

The September issue of Ra-Det will include articles on a new type of gas electron tube which has been developed under an Air Force contract by Northrup Aircraft, Incorporated, and an article describing a distributed amplifier used in coincidence counting work at the Radiation Laboratory of the University of California.

Copy material for the second edition of the "Compendium of Research and Development Activities in Radiation Instrumentation" was forwarded to the Technical Information Division, Oak Ridge, on August 25 for printing and distribution. Late information concerning the instrumentation programs of eighteen AEC installations is included. Physics instrumentation distribution will be made. An inquiry was made to the Office of the Chief of Declassification with regard to the classification which the Compendium should bear. This office concurred in the present "Confidential" marking and recommended that future issues also be classified "Confidential".

B. Conferences

On September 18-20, 1950 a joint AEC-NME symposium on the "Chemistry and Physics of Radiation Dosimetry" will be held at the Army Chemical Center, Maryland, with the Technical Command of the Army Chemical Corps serving as host. Approximately sixty representatives

from the AEC and AEC contractor organizations will attend the symposium. The agenda for this conference lists papers to be presented by outstanding authorities, among whom is Dr. George V. Taplan, of the Atomic Energy Project at the University of California at Los Angeles, the developer of one type of chemical dosimeter.

C. Civilian Defense

A meeting was held with Mr. Vincent B. Lamoureux of the NSRB to discuss the many letters which the Radiation Instruments Branch is receiving concerning instrumentation for civilian defense purposes. Our present policy in answering these letters was discussed and was considered to be adequate. However, in some cases it was decided to refer the letters directly to the NSRB for reply when the questions pertain to material outside the jurisdiction of the AEC.

The civilian defense monitoring instrument developed by the New York Operations Office was tested at the Bureau of Standards for energy dependency and at Fort Monmouth, New Jersey for ruggedness and climatic dependency. Although only incomplete tests data are available, the instrument appears to be quite adequate with regard to energy dependency and ruggedness.

D. Special Electron Tube Development Program

The Steering Committee of the Atomic Energy Commission's Special Tube Development Program met in Princeton, New Jersey on August 31 and September 1 for the purpose of formulating a program of research and development to be conducted by the Research Laboratories of the Radio Corporation of America under AEC contract. Bureau of Ships representatives attended a portion of the conference and a program of information exchange and contract coordination was evolved. A decision was made that the research activities should center around the development of two types of new photomultiplier tubes -- one, a large cathode area device for use as a gamma spectrometer, and the other a high gain fast tube for general use in the analysis of nuclear radiations. It was also decided to investigate the feasibility of a tube for application as a pulse height analyzer.

During the meeting it became apparent that there is need within the AEC for a panel to coordinate the research and development of electron tubes in general. It was recommended that this group be similar in nature and function to the Panel on Electron Tubes under the Research and Development Board of the NIE. The Instruments Branch was asked to investigate the reactions to this suggestion and the feasibility of establishing such a group.

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E. Coordination with the Naval Research Laboratory

During the month, arrangements were made for personnel from the New York Operations Office and the Oak Ridge National Laboratory to visit the Naval Research Laboratory. Personnel from NYOO visited Dr. Sidney Leibson at NRL to discuss halogen filled Geiger counters. Dr. Leibson had performed much of the original work on these type tubes. ORNL personnel visited the laboratory to discuss experiments being performed on scintillators for photomultiplier tubes. Much useful information was exchanged between these groups.

Enclosures:

As described in IF above (in trip.)

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STATUS OF SUPPLY PROCUREMENT REQUIREMENTS

DOE ARCHIVES

| Req. No. | Quantity  | Instrument                             | Contract Issued                                       | Company                         | Estimated Completion Date |          | Office Handling Contract |
|----------|-----------|--|---|---------------------------------|---------------------------|----------|--------------------------|
|          |           |  |   |                                 | Previous                  | Present  |                          |
| 51504    | 600<br>60 | Desimeters<br>Chargers                 | Gen. 630<br>6/28/48                                   | Cambridge Instrument<br>Company | June 50                   | Oct. 50  | OROC                     |
| 52221    | 25        | Alpha Survey Meter<br>(Portable Poppy) | AT(45-1)187<br>1/6/49                                 | Berkeley Scientific<br>Company  | June 50                   | Oct. 50  | HOO                      |
| 51776    | 50        | Probes for Pee Wee<br>Survey Meter     | BOA-1516-50<br>5/23/50                                | NICC                            | ----                      | Oct. 50  | Washington               |
| 52241    | 10        | Chargers for SPC-5B                    | Will be fabricated by<br>General Electric at Richland |                                 |                           | Complete | HOO                      |
| 51544    | 500       | Boron-lined neutron<br>Counters        | AT(30-1)419<br>10/28/48                               | General Electric                | June 51                   | Sept. 50 | NYCC                     |

STATUS OF STOCKPILE PROCUREMENT REQUISITIONS

| q.No. | Quantity | Instrument                    | Contract<br>Issued    | Company                          | Estimated Completion<br>Date |            | Office Handling<br>Contract |
|-------|----------|-------------------------------|-----------------------|----------------------------------|------------------------------|------------|-----------------------------|
|       |          |                               |                       |                                  | Previous                     | Present    |                             |
| 52257 | 750      | .2r Dosimeter<br>PIC-3C       |                       | National Technical<br>Laboratory | March 50                     | Jan. 50    | COO                         |
| 52257 | 750      | 10r Dosimeters<br>PIC-3D      |                       | Argonne National<br>Laboratory   | Dec. 50                      | Indefinite | COO                         |
| 52257 | 75       | Chargers, AV-3A               |                       | Argonne National<br>Laboratory   | March 50                     | Indefinite | COO                         |
| 51773 | 20       | SFC-1C Alpha Survey<br>Meters | AT(49-1)436<br>4/3/50 | NICC                             | -----                        | Sept. 50   | Washington                  |

STATUS OF PRODUCTION DEVELOPMENT PROCUREMENT REQUISITIONS

| Req. No. | Quantity | Instrument                             | Contract Issued            | Company                         | Estimated Completion Date |          | Office Handling Contract |      |
|----------|----------|--|----------------------------|---------------------------------|---------------------------|----------|--------------------------|------|
|          |          |  |                            |                                 | Previous                  | Present  |                          |      |
| 52201    | 25       | Alpha-Beta-Gamma Survey Meter (SIG-T1) | AT(40-1)780<br>5/20/48     | Sylvania Electric Products Inc. | July 50                   | Oct. 50  | ORCO                     |      |
| 52202    | 25       | Beta-Gamma Survey Meter (SGM-T3)       | AT(40-1)770<br>4/7/49      | Bendix Aviation Corp.           | July 50                   | Sept. 50 | ORCO                     |      |
| 52210    | 100<br>4 | Slow Neutron Dosimeter Chargers        | AT(40-1)435<br>10/28/48    | Cambridge Instrument Company    | Jan. 50                   | Oct. 50  | NYCO                     |      |
| 52211    | 10       | Alpha-Survey Meter (Walkie Poppy)      | AT(40-1)430<br>11/15/48    | General Electric                | July 50                   | Sept. 50 | NYCO                     |      |
| 52219    | 10       | Alpha-Beta-Gamma Civilian Monitor      | Being Negotiated by ORNL   |                                 |                           |          |                          | ORCO |
| 52214    | 25       | Filter Paper Analyzer                  | AT(11-1)18<br>4/7/49       | NICC                            | July 50                   | Sept. 50 | COO                      |      |
| 52225    | 60       | AC Poppy                               | AT(40-1)775<br>5/17/49     | Raytheon Manufacturing Company  | March 50                  | Oct. 50  | ORCO                     |      |
| 52230    | 40       | Scale of 8 Survey Meters               | AT(04-1)429<br>4/8/49      | Berkeley Scientific Company     |                           | Complete | SFOO                     |      |
| 52240    | 25       | Pocket Electrometer PIC-15A            | Will be Negotiated by SFOO |                                 |                           |          |                          | SFOO |



STATUS OF TEST PROCUREMENT REQUISITIONS

| Req.No. | Quantity | Instrument   | Contract Issued        | Company                                 | Estimated Completion Date | Office Handling Contract |
|---------|----------|--|------------------------|---|---------------------------|--------------------------|
| 51767   | 17       | MIC-15A Brown Electrometers                            | AT(40-1)809<br>1/13/50 | Minneapolis Honeywell Regulator Company | Sept. 50                  | Washington               |
| 51783   | 5        | Windowless Flow Counters BG-5B2A                       | AT(49-1)480<br>6/23/50 | Tracerlab, Inc.                         | Oct. 50                   | Washington               |
| 51784   | 5        | AV-13A Power Supply                                    | Being Negotiated       | NICC                                    |                           | Washington               |
| 51784   | 5        | AV-15A Power Supply                                    | Being Negotiated       | Victoreen Instrument Company            |                           | Washington               |
| 51785   | 10       | SQM-31A Portable Survey Meter, Model RMI               | AT(49-1)482<br>6/26/50 | Nucleonic Corporation of America        | Complete                  | Washington               |
| 51785   | 10       | Alpha-Beta-Gamma Probes for RMI with BG-1A22C GM Tubes | AT(49-1)482<br>6/26/50 | Nucleonic Corporation of America        | Oct. 50                   | Washington               |
| 51785   | 5        | Geiger Tubes Model GM1NNA (BG-1A22D)                   | AT(49-1)482<br>6/26/50 | Nucleonic Corporation of America        | Oct. 50                   | Washington               |
| 51786   | 25       | PIC-12A Dosimeters                                     | Being Negotiated       | Kelley-Koett Manufacturing Company      |                           | Washington               |
| 51786   | 25       | AV-2F Chargers   | Being Negotiated       | Kelley-Koett Manufacturing Company      |                           | Washington               |
| 51786   | 2        | SIC-25A Survey Meters                                  | Being Negotiated       | Kelley-Koett Manufacturing Company      |                           | Washington               |
| 51787   | 5        | MIC-2CX2 Switch for Vibrating Reed Electrometer        | Being Negotiated       | Applied Physics Corp.                   |                           | Washington               |

STATUS OF TEST PROCUREMENT REQUISITIONS  
(Continued)

| Req.No. | Quantity | Instrument  | Contract Issued        | Company                        | Estimated Completion Date | Office Handling Contract |
|---------|----------|---|------------------------|--------------------------------|---------------------------|--------------------------|
| 51787   | 5        | BIC-2A Ionization Chamber for Vibrating Reed Electrometer | Being Negotiated       | Applied Physics Corp.          |                           | Washington               |
| 51788   | 1        | MIC-17A Precision Ionization Meter (Falla Design)         | AT(49-1)456<br>6/20/50 | Cambridge Instrument Company   | Complete                  | Washington               |
| 51789   | 3        | AC-6B Electrostatic Precipitator                          | AT(49-1)461<br>6/26/50 | Mine Safety Appliances Company | Complete                  | Washington               |
| 51789   | 1        | AC-8A Air Collector                                       | AT(49-1)461<br>6/26/50 | Mine Safety Appliances Company | Complete                  | Washington               |
| 51790   | 2        | SIC-26A1 Analysis Units, Open Window                      | BCW-324-51<br>8/24/50  | Landsverk Electrometer Company | Nov. 50                   | Washington               |
| 51790   | 2        | SIC-26A2 Analysis Units, Thin Window                      | BCW-324-51<br>8/24/50  | Landsverk Electrometer Company | Nov. 50                   | Washington               |
| 51790   | 2        | SIC-26A3 Analysis Units, Closed Window                    | BCW-324-51<br>8/24/50  | Landsverk Electrometer Company | Nov. 50                   | Washington               |
| 51790   | 50       | FIC-18A Pocket Chamber, Low Range                         | BCW-324-51<br>8/24/50  | Landsverk Electrometer Company | Nov. 50                   | Washington               |
| 51790   | 5        | AE-7A Charger   | BCW-324-51<br>8/24/50  | Landsverk Electrometer Company | Nov. 50                   | Washington               |
| 51791   | 8        | SBX-2A Scintillation Type Survey Meter                    | BCW-253-51<br>8/11/50  | General Electric               | Jan. 51                   | Washington               |

STATUS OF TEST INCURMENT REQUISITIONS  
(Continued)

| Req. No. | Quantity | Instrument                           | Contract Issued        | Company                      | Estimated Completion Date | Office Handling Contract |
|----------|----------|--------------------------------------|------------------------|------------------------------|---------------------------|--------------------------|
| 51792    | 2        | SIC-7B Beta-Gamma Survey Meters      | Being Negotiated       | Tracerlab, Inc.              |                           | Washington               |
| 51792    | 5        | AR-12A Mechanical Registers          | Being Negotiated       | Tracerlab, Inc.              |                           | Washington               |
| 51792    | 30       | PIC-16A Dosimeters                   | Being Negotiated       | Tracerlab, Inc.              |                           | Washington               |
| 51792    | 5        | AV-22A Chargers                      | Being Negotiated       | Tracerlab, Inc.              |                           | Washington               |
| 51792    | 3        | ABX-6A Alpha Scintillation Probe     | Being Negotiated       | Tracerlab, Inc.              |                           | Washington               |
| 51793    | 1        | AT-24A Double Pulse Generator        | BOW-1632-50            | Berkeley Scientific Company  | Oct. 50                   | Washington               |
| 51794    | 2        | SIC-24A Zeuto                        | Being Negotiated       | NICC                         |                           | Washington               |
| 51794    | 5        | SEM-4E Alpha-Beta-Gamma Survey Meter | Being Negotiated       | NICC                         |                           | Washington               |
| 51797    | 1        | MM-22A Area Monitor                  | BOW-1637-50<br>6/20/50 | Radiophone Company           | Oct. 50                   | Washington               |
| 51799    | 1        | MBX-2A Monitor                       | BOW-218-51<br>8/3/50   | R-C Scientific Inst. Company | Oct. 50                   | Washington               |
| 51799    | 1        | ABX-2A Detecting Head                | BOW-218-51<br>8/3/50   | R-C Scientific Inst. Company | Oct. 50                   | Washington               |
| 51799    | 1        | ABX-3A Detecting Head                | BOW-218-51<br>8/3/50   | R-C Scientific Inst. Company | Oct. 50                   | Washington               |

STATUS OF TEST PROCUREMENT REQUISITIONS  
(Continued)

| Req. No. | Quantity | Instrument                             | Contract Issued        | Company                          | Estimated Completion Date | Office Handling Contract |
|----------|----------|--|------------------------|----------------------------------|---------------------------|--------------------------|
| 51800    | 10       | BE-4A Photomultiplier Tubes            | Being Negotiated       | Radio Corporation of America     | Oct. 50                   | Washington               |
| 51800    | 10       | BE-5A Photomultiplier Tubes            | Being Negotiated       | Radio Corporation of America     |                           | Washington               |
| 51801    | 2        | SIC-22A Beta-Gamma Survey Meter        | BOW-1638-50<br>6/27/50 | Atomic Instrument Co.            | Complete                  | Washington               |
| 51801    | 1        | BG-1E26A Probing Needle Counter        | Being Negotiated       | Victoreen Instrument Co.         |                           | Washington               |
| 51801    | 2        | ABX-1A Scintillation Head              | BOW-1638-50<br>6/22/50 | Atomic Instrument Co.            | Complete                  | Washington               |
| 51803    | 1        | CGM-26A1 Binary Scaler                 | BOW-325-51<br>8/24/50  | Nucleonic Corporation of America | Nov. 50                   | Washington               |
| 51803    | 1        | CGM-26B3 Decade Scaler                 | BOW-324-51<br>8/24/50  | Nucleonic Corporation of America | Nov. 50                   | Washington               |
| 51804    | 5        | SGM-52A Beta-Gamma Survey Meter        | Being Negotiated       | Victoreen Instrument Co.         |                           | Washington               |
| 51805    | 37       | BPE-1A Neutron Thermometers            | BOW-217-51<br>8/2/50   | NICC                             | Feb. 51                   | Washington               |
| 51806    | 25       | SIC-31A Civilian Defense Survey Meters | AT(49-1)451<br>6/19/50 | Tracerlab, Inc.                  | Dec. 50                   | Washington               |
| 51806    | 20       | SIC-32A Civilian Defense Survey Meters | AT(49-1)458<br>6/22/50 | Victoreen Instrument Co.         | Dec. 50                   | Washington               |

STATUS OF TEST PROCUREMENT REQUISITIONS  
(Continued)

| Req. No. | Quantity | Instrument                             | Contract Issued        | Company                        | Estimated Completion Date | Office Handling Contract |
|----------|----------|--|------------------------|--------------------------------|---------------------------|--------------------------|
| 51806    | 20       | SIC-33A Civilian Defense Survey Meters | AF(49-1)459<br>6/22/50 | Kelley-Koett Mfg. Co.          | Dec. 50                   | Washington               |
| 51806    | 20       | SIC-34A Civilian Defense Survey Meters | AF(49-1)459<br>6/22/50 | Kelley-Koett Mfg. Co.          | Dec. 50                   | Washington               |
| 51811    | 20       | SIC-36A Civilian Defense Survey Meters | BOW-216-51<br>8/2/50   | NICC                           | Feb. 51                   | Washington               |
| 51813    | 2        | SIC-45B Survey Meter                   | Being Negotiated       | Special Instruments Laboratory |                           | Washington               |
| 51814    | 10       | SIC-19C Survey Meter AM/PDR-T1         | BOW-216-51<br>8/2/50   | Signal Corps.                  | Indefinite                | Washington               |
| 51816    | 50       | FIC-19A Dosimeters, Low Range          | BOW-324-51<br>8/24/50  | Landsverk Electrometer Company | Nov. 50                   | Washington               |
| 51816    | 5        | AV-23A Chargers                        | BOW-324-51<br>8/24/50  | Landsverk Electrometer Company | Nov. 50                   | Washington               |
| 51818    | 20       | SGM-53A Survey Meters AM/PDR-27        | BOW-891-51<br>8/17/50  | Dept. of Defense               | Indefinite                | Washington               |
| 51820    | 10       | CGM-35A Scalers                        | Being Negotiated       | Radioactive Products           |                           | Washington               |