

## Office Memorandum • UNITED STATES GOVERNMENT

TO : John A. Derry, Executive Officer  
 Division of Biology and Medicine

FROM : Robert L. Butenhoff, Acting Chief, Radiation Instruments Branch, Division of Biology and Medicine

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

SYMBOL: BMR:JCG

311

DATE: July 12, 1950

Contract negotiations were consummated by the Washington Headquarters Procurement Office with four companies for civilian radiological defense type monitoring instruments. Five different types of instruments are being procured at a total cost of \$20,160. Delivery of twenty models of each type is scheduled prior to January 1, 1951.

\$41,000 has been allotted to the Oak Ridge Operations Office for use by the Oak Ridge National Laboratory in financing a contract with the Raytheon Manufacturing Company for production engineering of a pocket-sized survey meter. This contract will be divided into two separate phases - the improvement of presently available electrometer tubes and the design of an instrument proper. This instrument will be sensitive to alpha, beta, and gamma radiation and will be calibrated from 1/100 to 100 roentgens per hour with an indication accuracy in the order of plus or minus 15 to 30 percent.

Development at the other Commission sites is continuing. Contracts are being negotiated by both Brookhaven and New York for instrument component development. \$56,000 was allotted to the Naval Radiological Defense Laboratory for a feasibility investigation of three additional types of radiological monitors.

A standard operating procedure for the Washington, D. C. area emergency monitoring team has been prepared and is to be discussed during a meeting of the team members on July 18, 1950. The team is comprised of a staff group and four subordinate groups recruited from specific geographical locations, including Montgomery County, Arlington County, Prince Georges County, and the District of Columbia.

A conference on reactor instrumentation was held under the joint sponsorship of the Radiation Instruments Branch and the Atomic Power Division of the Westinghouse Electric Corporation at Pittsburgh on June 5 and 6. The conference, being the first scheduled on this type of instrumentation, was very successful in disseminating information and resolving various reactor instrumentation problems.

The Agenda for the joint AEC-Department of Defense sponsored symposium on "Chemistry and Physics of Radiation Dosimetry" was reviewed by the Branch. The conference which is scheduled for September 18, 19, and 20 is very comprehensive and should be of considerable value to both organizations.

ORGANIZATION &amp; MANAGEMENT

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July 12, 1950

I. Procurement and Industrial Development ActivitiesA. Summary of AEC Procurement Activities for Period June 1, 1950 - June 30, 1950

	<u>Accessories</u>	<u>Components</u>	<u>Scalars</u>	<u>Monitors</u>	<u>Personnel</u>	<u>Survey</u>	<u>Total</u>
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Production Engineering and test contracts or purchase orders executed							
Number of Items	3	4	0	1	0	7	15
Amount	\$ 3,652.50	\$ 2,685.25		\$ 1,650.00		\$ 15,987.21	\$23,974.96

Office of Operations Centralized Procurement Contracts or purchase orders executed							
Number of Items	3	7	2	1	0	2	15
Amount	\$ 1,664.50	\$ 3,214.25	\$1,854.90	\$195.00		\$352.00	\$7,281.15

B. AEC Sponsored Research and Development

Contracts were consummated by the Washington Headquarters Procurement Office for civilian radiological monitors manufactured by four companies. These companies and the amounts involved are:

Nuclear Instrument and Chemical Company	\$ 7,500.00
Tracerlab	\$ 5,000.00
Kelley-Koett	\$ 4,660.00
Victoreen	\$ 3,000.00

Approximately twenty units of each type are to be furnished by each company and deliveries are expected by January 1, 1951. The target completion dates and schedules of January 1, 1950 for the Commission projects remain unchanged. The projects of each site with relation to the work is as follows:

Argonne National Laboratory - Still in planning stages.

Brookhaven National Laboratory - \* A contract has been entered into with the Westinghouse Electric Corporation for the production engineering of the cold cathode trigger tube for use with the Brookhaven scintillation monitor. Preliminary negotiations were begun with the E. R. Mallory Company for the development of a vibrator power supply and budget planning for industrial production engineering of the finished instrument was completed. A \$15,000 allotment is proposed for this latter work.

\* Letter of Intent

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July 12, 1950

New York Operations Office - Continued work is being done in the packaging of the NYCO Geiger counter survey meter.

Navy Department - An allotment of \$56,000 was made to the Naval Radiological Defense Laboratory for the program of investigating the feasibility of three types of radiological monitors. It is expected that a selection will be made of the most feasible method and prototype instruments will be produced by January 1, 1951.

Oak Ridge National Laboratory - An amount of \$41,000 was allotted to the Oak Ridge Operations Office for use by the Oak Ridge National Laboratory in financing a contract with the Raytheon Manufacturing Company for the development of a civilian defense radiation monitor. This contract is divided into two phases:

1. Design of an improved electrometer type radiation monitoring device.
2. Improvement of presently available electrometer tubes for use within the aforementioned instrument.

The instrument is to be sensitive to alpha, beta, and gamma radiations. The range for gammas will be between 10 mr to 100 r per hour with accuracies in the order of plus or minus 15 to 30 percent.

University of Rochester Atomic Energy Project - The application of the DuBridge-Brown circuit which, because of its inherent stability might be applicable in civil defense monitors, is being investigated. Mr. Adrian H. Dahl, who is investigating this possibility, described progress being made at Rochester during his recent visit to the Radiation Instruments Branch. Mr. H. D. Levine, the New York Operations area coordinator, was apprised of the Branch's interest in the continuation of this work. There has been no planning thus far with respect to budgetary requirements for this project.

### C. Instrument Appraisal Program

A review was completed of new products announced by the radiation instrument industry and approximately fifty items were collected for inclusion within the appraisal stockpile. Prior to the close of the fiscal year, procurement action was initiated for a large majority of this equipment. The bulk items offered will become available for inspection and evaluation within the next 30 to 60 days. A new schedule for publication of the much delayed Appraisal List Number 2 has been set for August 15.

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July 12, 1950

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### Catalog

Of the eighteen companies delinquent with respect to furnishing catalog information describing their new products, eleven have now responded and information has been received that the seven who have failed to reply to our inquiry are no longer manufacturing instruments in the field. The Catalog will be submitted to the printers sometime during the month of July.

### 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 July issue of Ra-Det features a report by W. J. MacIntyre of Western Reserve University entitled "A Scintillation Counter for Measurement of  $I^{131}$  Uptake in the Thyroid Gland". A 30 to 50 fold improvement in sensitivity over the conventional Geiger counter system is obtained through the use of scintillation counters in coincidence. Nine new commercial radiation detection equipments are announced in the "New Products" section.

Reports from the areas describing instrument research and development activities for inclusion in the second edition of the "Compendium" are being received. These reports are being edited and indexed and will be submitted for printing during the month of July.

### B. Conferences

A Symposium on Reactor Instrumentation under the joint sponsorship of the Branch and the Atomic Power Division of Westinghouse was held at Pittsburgh, Pennsylvania on June 5 and 6. Seven AEC sites, the Department of the Defense, and the Washington AEC staff were

July 12, 1950

represented by about forty persons. The conference, the first scheduled on this type of instrumentation, was very successful in disseminating information and resolving various reactor instrumentation problems.

The Agenda for the joint AEC-Department of Defense sponsored symposium on "Chemistry and Physics of Radiation Dosimetry" was reviewed by the Branch. The conference which is scheduled for September 18, 19, and 20 is very comprehensive and should be of considerable value to both organizations.

On June 7 a meeting was held at the Argonne National Laboratory for the purpose of evaluating three industrial proposals for the development of high speed electromechanical registers. In attendance were Dr. Arthur Jaffey, ANL, Mr. Jack East, ORNL, Mr. Frank Bradley, COO, and Mr. R. W. Johnston of the TCS. It was decided that the proposal submitted by the Elgin National Watch Company offered the best possibilities and, based on this decision, the COO has negotiated a contract with them.

Attempts are being made to initiate declassification of the Minutes of the Joint US/UK/Canadian conference held in Oak Ridge on May 2, 3, and 4, 1949. This action was requested by the Department of the Defense which desires to give the report a wider distribution than could be obtained with its present "Confidential" classification.

### C. Civilian Defense

This Section has cooperated with the Production Facilities Section in making decisions concerning the awarding of contracts for civilian defense type instruments. Letters have been sent to those companies whose proposals were considered to be inadequate, informing them of our decisions and the reasons behind them.

In cooperation with the PFS, the prototypes of a simple pocket electroscope have been tested. Informal arrangements were made with personnel of the X-ray Laboratory of the Bureau of Standards for the use of their X-ray and auxiliary equipment in conducting these tests.

A meeting was held with representatives of the General Electric Company to discuss a research proposal concerning civilian defense instruments. Although there was basic agreement on the type of instrumentation needed and of GE approach, a decision was deferred until information is received on the electrostatic voltmeter which they propose using.

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July 12, 1950

D. Instrumentation Reports

During the month it was learned that the Naval Bureau of Aeronautics is not distributing their contractor progress reports to the AEC. This was called to the attention of the Division of Public and Technical Information Service who will make arrangements to receive copies of these reports. An investigation disclosed that most of the AEC instrumentation personnel are not aware of the Department of the Defense activities in radiation instrumentation. Although some copies of their contractor progress reports are received by the Library Branch in Oak Ridge and appear in their abstracts, the Branch is considering routinely distributing our own abstracts of all the military reports.

E. Semi-Annual Report to Congress

Material concerning radiation instruments for the next semi-annual report to Congress was given a final review by members of the Branch and minor changes and revisions were suggested and incorporated.

## Enclosures:

As described in **IE** above

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STATUS OF INCOMPLETED NAVY ORDERS

DOE ARCHIVES

Item #	Quantity	Item	Remarks	Estimated Completion Date
21	49	PIC-11C Pocket Alarms	Will be furnished from existing SFOO contracts	June 1950

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*Barrett*

STATUS OF SUPPLY PROCUREMENT REQUISITIONS  
(INCLUDING INTERIM PRODUCTION)

Req #	Quantity	Instrument	Contract Issued	Company	Estimated Completion Date		Office Handling Contract
					Previous	Present	
51504	600 60	Dosimeters Chargers	Gen. 630 6/28/48	Cambridge	June 50	August 50	ORCO
52221	25	Alpha Survey Meter (Portable Poppy)	AT(45-1)187 1/6/49	Berkeley Scientific Co.	June 50	August 50	HOO
52220	60	Pocket Alarm PIC-11C	AT(04-1)388	NIL	March 50	June 50	SFOO
51776	50	Probes for Pee Wee Survey Meter	BOW-1516-50 5/23/50	NICC	-----	July 50	Washington
52241	10	Chargers for SPC-5B	Will be fabricated by G.E. at Richland		-----	August 50	HOO
51544	500	Boron-lined neutron counters	AT(30-1)419 10/28/48	G.E.	June 51	June 51	NYOO

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STATUS OF STOCKPILE PROCUREMENT REQUISITION

Req #	Quantity	Instrument	Contract	Company	Estimated Completion Date		Office Handling Contract
					Previous	Present	
52237	750	.2r Dosimeter PIC-3C		National Technical Laboratory	March 50	July 50	COO
52237	750	10r Dosimeters PIC-3D		Argonne National Laboratory	Dec. 50	Indefinite	COO
52237	75	Chargers, AV-3A		Argonne National Laboratory	March 50	July 50	COO
51773	20	SPC-1C Alpha Survey Meters	AT(49-1)436 4/3/50	NICC	-----	July 50	Washington
52242	30	Containers for Monitoring Team Kits				Complete	HOO

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STATUS OF PRODUCTION DEVELOPMENT PROCUREMENT REQUISITIONS

DOE ARCHIVES

Req #	Quantity	Instruments	Contract Issued	Company	Estimated Completion Date		Office Handling Contract	Remarks
					Previous	Present		
51457	2	Alpha-Beta-Gamma Hand Counter Probe	Gen-686 9/20/48	General Electric	Dec. 49	July 50	OROO	
51457	2	5-Fold Beta-Gamma Hand and Foot Counter	GEN-710 9/30/48	RCA	June 50	July 50	OROO	
52201	25	Alpha-Beta-Gamma Survey Meter (SIC-T1)	AT(40-1)780 5/20/48	Sylvania	March 50	July 50	OROO	
52202	25	Beta-Gamma Survey Meter (SGM-T3)	AT(40-1)770 4/7/49	Bendix	March 50	July 50	OROO	
52210	100 4	Slow Neutron Dosimeter Chargers	AT(40-1)435 10/28/48	Cambridge Inst. Company	Jan. 50	August 50	NYOO	
52211	10	Alpha-Survey Meter (Walkie Poppy)	AT(40-1)430 11/15/48	General Electric		July 50	NYOO	
52239	10	Alpha-Beta-Gamma Civilian Monitor	Being negotiated by ORNL				OROO	
52214	25	Filter Paper Analyzer	AT(11-1)18 4/7/49	NICC	March 50	July 50	COO	
52225	60	AC Poppy	AT(40-1)775 5/17/49	Raytheon	March 50	Oct. 50	OROO	
52230	40	Scale of 8 Survey Meters	AT(04-1)249 4/8/49	Berkeley Scientific Co.	Feb. 50	June 50	SFOO	
52240	25	Pocket Electrometer PIC-15A	Will be negotiated by SFOO				SFOO	Prototype instruments now under-going test.

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Req #	Quantity	Instrument	Contract Issued	Company	Estimated Completion Date	Office Handling Contract
51767	17	MIC-15A Brown Electrometers	AT(40-1)809 1/13/50	Minneapolis Honeywell Regulator Company	July 50	Washington
51772	5	SIC-23A Alpha-Beta-Gamma Survey Meters Model D-1	BOW-1258-50 3/14/50	Radioactive Products, Inc.	Complete	Washington
51780	1	SBX-3A Scintillation Type Survey Meter	BOW-1614-50 6/15/50	Halross Instrument Corp.	Complete	Washington
51781	5	ARC-1A Counting Rate Computers	AT(49-1)439 6/14/50	Berkeley Scientific Co.	August 50	Washington
51782	5	TGC-10 GM Tubes	BOW-1503-50 5/22/50	Tracerlab, Inc.	Complete	Washington
51783	5	Windowless Flow Counters, BG-5B2A	AT(49-1)460 6/23/50	Tracerlab, Inc.	August 50	Washington
51784	5	AV-13A Power Supply	Being Negotiated	NICC		Washington
51784	5	AV-15A Power Supply	Being Negotiated	Victoreen		Washington
51785	10	SGM-31A Portable Survey Meter Model RMI	AT(49-1)462 6/26/50	Nucleonic Corporation of America	August 50	Washington
51785	10	Alpha-Beta-Gamma Probes for RMI with BG-1A22C GM Tubes	AT(49-1)462 6/26/50	Nucleonic Corporation of America	August 50	Washington

STATUS OF TEST PROCUREMENT REQUISITIONS

Req #	Quantity	Instrument	Contract Issued	Company	Estimated Completion Date	Office Handling Contract
51785	5	Geiger Tubes Model GM1NNA (BG-1A22D)	AT(49-1)462 6/26/50	Nucleonic Corporation of America	August 50	Washington
51786	25	PIC-12A Dosimeters	Being Negotiated	Kelley-Koett		Washington
51786	25	AV-2F Chargers	Being Negotiated	Kelley-Koett		Washington
51786	2	SIC-25A Survey Meters	Being Negot'd.	Kelley-Koett		Washington
51787	5	MIC-2CX2 Switch for Vibrating Reed Electrometer	Being Negot'd.	Applied Physics		Washington
51787	5	BIC-2A Ionization Chamber for Vibrating Reed Electrometer	Being Negot'd.	Applied Physics		Washington
51788	1	MIC-17A Precision Ionization Meter (Failla Design)	AT(49-1)456 6/20/50	Cambridge Instrument Co.	August 50	Washington
51789	3	AC-6B Electrostatic Precipitator	AT(49-1)461 6/26/50	Mine Safety Appliance Co.	August 50	Washington
51789	1	AC-8A Air Collector	AT(49-1)461 6/26/50	Mine Safety Appliance Co.	August 50	Washington
51790	2	SIC-26A1 Analysis Units, open window	Being Negotiated	Landsverk Electrometer Co.		Washington

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STATUS OF TEST PROCUREMENT REQUISITIONS

Req #	Quantity	Instrument	Contract Issued	Company	Estimated Completion Date	Office Handling Contract
51790	2	SIC-26A2 Analysis Units, thin window	Being Negotiated	Landsverk Electrometer Co.		Washington
51790	2	SIC-26A3 Analysis Units, closed window	Being Negot'd.	Landsverk Electrometer Co.		Washington
51791	8	SBX-2A Scintillation Type Survey Meter	Being Negot'd.	General Electric		Washington
51792	2	SIC-7B Beta-Gamma Survey Meters	Being Negot'd.	Tracerlab		Washington
51792	5	AR-12A Mechanical Registers	Being Negotiated	Tracerlab		Washington
51792	30	PIC-16A Dosimeters	Being Negot'd.	Tracerlab		Washington
51792	5	AV-22A Chargers	Being Negot'd.	Tracerlab		Washington
51792	3	ABX-6A Alpha Scintillation Probe	Being Negot'd.	Tracerlab		Washington
51793	1	AT-24A Double Pulse Generator	BOW-1632-50	Berkeley Scientific Co.	August 50	Washington
51794	2	SIC-24A Zeuto	Being Negot'd.	NICC		Washington
51794	5	SGM-4E Alpha-Beta-Gamma Survey Meter	Being Negot'd.	NICC		Washington
51795	1	SGM-48A Gamma Survey Meter	BOW-1631-50 6/19/50	Western Radiation Lab.	July 50	Washington

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Req #	Quantity	Instrument	Contract Issued	Company	Estimated Completion Date	Office Handling Contract
51796	2	BG-4B14A Bismuth wall Gamma Counter	BOW-1635-50 6/20/50	RCL	Complete	Washington
51797	1	MGM-22A Area Monitor	BOW-1637-50 6/20/50	Radiophone Company	July 50	Washington
51798	2	BG-5-A3A Windowless Flow Counter	BOW-1627-50 6/20/50	Research Equip. & Service	Complete	Washington
51799	1	MBX-2A Monitor	Being Negot'd.	R-C Scientific Instrument Company		Washington
51799	1	ABX-2A Detecting Head	Being Negot'd.	R-C Scientific Instr. Co.		Washington
51799	1	ABX-3A Detecting Head	Being Negot'd.	R-C Scientific Instr. Co.		Washington
51800	10	BE-4A Photomultiplier Tubes	Being Negotiated	RCA		Washington
51800	10	BE-5A Photomultiplier Tubes	Being Negotiated	RCA		Washington
51801	2	SIC-22A Beta-Gamma Survey Meters	BOW-1638-50 6/22/50	Atomic Instrument Co.	August 50	Washington
51801	2	ABX-1A Scintillation Head	BOW-1638-50 6/22/50	Atomic Instrument Co.	August 50	Washington
51802	1	BG-1B26A Probing Needle Counter	Being Negotiated	Victoreen		Washington
51803	1	CGM-26A1 Binary Scaler	Being Negotiated	NCA		Washington

STATUS OF TEST PROCUREMENT REQUISITIONS

Req #	Quantity	Instrument	Contract Issued	Company	Estimated Completion Date	Office Handling Contract
51803	1	CGM-26B3 Decade Scaler	Being Negot'd.	NCA		Washington
51804	5	SGM-52A Beta-Gamma Survey Meter	Being Negotiated	Victoreen		Washington
51805	37	BFT-1A Neutron Thermometers	Being Negotiated	NICC		Washington
51806	25	SIC-31A Civilian Defense Survey Meters	AT(49-1)451 6/19/50	Tracerlab	December 50	Washington
51806	20	SIC-32A Civilian Defense Survey Meters	AT(49-1)458 6/22/50	Victoreen	December 50	Washington
51806	20	SIC-33A Civilian Defense Survey Meters	AT(49-1)459 6/22/50	Kelley-Koett	December 50	Washington
51806	20	SIC-34A Civilian Defense Survey Meters	AT(49-1)459 6/22/50	Kelley-Koett	December 50	Washington

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