

MONSANTO RESEARCH CORPORATION

MOUND LABORATORY

MIAMISBURG, OHIO

U. S. GOVERNMENT CONTRACT NO. AT-33-1-GEN-53

AREA CODE 513
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November 3, 1964

~~SECRET~~
DATE 11/3/64 INIT [Signature]

Mr. W. B. Creamer, Manager
Dayton Area Office
U. S. Atomic Energy Commission
Post Office Box 66
Miamisburg, Ohio

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Dear Mr. Creamer:

Additional funding for the Division of Isotope Development program at Mound Laboratory is required during FY-1965 for the POODLE demonstration program. The operating money requested in the FY-1965 budget submission for FY-1965 (\$1,100,000) was based on the assumption that the POODLE development program at Mound would only be required to develop a fuel form and compatible capsule material for operation at 1500°C during FY-1965. However, during April, 1964, Mound was directed to cooperate with Space Technology Laboratory in performing a one hundred hour POODLE feasibility demonstration test (W. B. Creamer to D. L. Scott, April 22, 1964). This test requires the processing of 27,000 curies of polonium at a cost of \$6.62 per curie or \$178,740 for the total processing cost. Assuming a partial credit for polonium to be returned to the production system at the end of the test, however, reduces the cost of the polonium to \$140,000. This credit is based on the quantity of polonium which can be reclaimed to meet other program requirements during the last four months of FY-1965, less reprocessing costs. It is requested that an additional \$140,000 in operating money be provided for FY-1965 to fund this polonium cost.

The amount of polonium for the POODLE demonstration test is based on the requirement that the fuel module contain 500 watts of polonium at the end of the demonstration test. In order to meet this requirement, the polonium capsule loadings begin 90 days prior to this date, necessitating the payment for the polonium during the second quarter of FY-1965. The production

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costs for this material were obtained by distributing the polonium process facility operating costs against the total amount of polonium processed during the corresponding period. This analysis fixed the cost of polonium at \$6.62 per curie at the present level of operation. Credit for returning a portion of this material may be realized during the fourth quarter of FY-1965 following the completion of the demonstration test. The net cost of the polonium is, therefore, estimated to be \$140,000 which must be provided in addition to the \$1,100,000 presently funded for FY-1965 without severely affecting or curtailing other program activities.

Development and characterization of high temperature polonium-210 and plutonium-238 fuel forms for future SNAP use, an expanded number of SNAP and power source programs (NIMBUS, Heat Pipe, SLRV, 15A, 15C, POODLE capsules and fuel forms) and increased impetus on process development work prevent the possibility of costing the polonium out of the current FY-1965 operating budget of \$1,100,000.

The planned operating costs for the Division of Isotopes Development activities at Mound Laboratory as presented in the FY-1966 budget submission for FY-1965 and FY-1966 are summarized below.

<u>Operating Cost Summary</u>	<u>FY-1965</u>	<u>FY-1966</u>
I. Direct Salaries	\$ 236,000	\$ 444,000
II. Direct Materials and Services	134,000	239,000
III. Other	125,000	294,000
IV. Indirect Expenses	<u>605,000</u>	<u>1,623,000</u>
Total	\$ 1,100,000	\$ 2,600,000

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The approximate distribution of operating costs planned for FY-1965 and FY-1966 are listed in the following table.

Program Activity	FY-1965	FY-1966
I. Pu-238 Fuel Forms	\$ 210,000	\$ 330,000
II. Pu-238 Process Development	84,000	86,000
III. Po-210 Fuel Forms	168,000	246,000
IV. Po-210 Process Development	384,000	114,000
V. Systems Evaluation	152,000	210,000
VI. Heat Source Fabrication	210,000	314,000
VII. Plutonium Production	192,000	300,000
VIII. Polonium Production	---	1,000,000
Total	\$ 1,100,000	\$ 2,600,000

It should be emphasized that the present 08 program costs are being incurred at a rate which, projected to the end of the 1965 fiscal year, will total \$1,100,000 exclusive of the polonium costs. If it becomes necessary to cost the polonium out of this money, our programmatic efforts would have to be reduced in the third and fourth quarters of FY-1965 or, at the present operating level, the 08 operating money would be completely depleted by May, 1965.

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Mr. W. B. Creamer

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If you have any questions concerning this information, please contact us.

Very truly yours,

Original signed by D. L. Scott

David L. Scott
Vice President,
Plant Manager

DLS: kh

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