



TRAINING AND EXPERIENCE OF EACH INDIVIDUAL NAMED IN ITEM 4 (Use supplemental sheets if necessary)

8. TYPE OF TRAINING	WHERE TRAINED	DURATION OF TRAINING	ON THE JOB (Circle answer)	FORMAL COURSE (Circle answer)
a. Principles and practices of radiation protection	See application for byproduct material license, dated 8 June 1961 for Carbon 14 and attached sheet.		Yes No	Yes No
b. Radioactivity measurement standardization and monitoring techniques and instruments			Yes No	Yes No
c. Mathematics and calculations basic to the use and measurement of radioactivity			Yes No	Yes No
d. Biological effects of radiation			Yes No	Yes No

9. EXPERIENCE WITH RADIATION. (Actual use of radioisotopes or equivalent experience.)

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
		See Item 8 above		

10. RADIATION DETECTION INSTRUMENTS. (Use supplemental sheets if necessary.)

TYPE OF INSTRUMENTS (Include make and model number of each)	NUMBER AVAILABLE	RADIATION DETECTED	SENSITIVITY RANGE (mr/hr)	WINDOW THICKNESS (mg/cm <sup>2</sup> )	USE (Monitoring, surveying, measuring)
See Item 8 above					

11. METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED ABOVE.

See Item 8 above

12. FILM BADGES, DOSIMETERS, AND BIO-ASSAY PROCEDURES USED. (For film badges, specify method of calibrating and processing, or name of supplier.)

See Item 8 above

INFORMATION TO BE SUBMITTED ON ADDITIONAL SHEETS

13. FACILITIES AND EQUIPMENT. Describe laboratory facilities and remote handling equipment, storage containers, shielding, fume hoods, etc. Explanatory sketch of facility is attached. (Circle answer) Yes No

See Item 8 above

14. RADIATION PROTECTION PROGRAM. Describe the radiation protection program including control measures. If application covers sealed sources, submit leak testing procedures where applicable, name, training, and experience of person to perform leak tests, and arrangements for performing initial radiation survey, servicing, maintenance and repair of the source.

See Item 8 above

15. WASTE DISPOSAL. If a commercial waste disposal service is employed, specify name of company. Otherwise, submit detailed description of methods which will be used for disposing of radioactive wastes and estimates of the type and amount of activity involved.

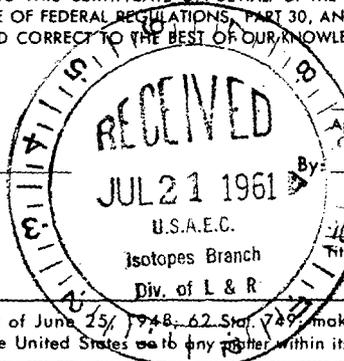
See Item 8 above

CERTIFICATE (This item must be completed by applicant)

16. THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATE ON BEHALF OF THE APPLICANT NAMED IN ITEM 1, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PART 30, AND THAT ALL INFORMATION CONTAINED HEREIN, INCLUDING ANY SUPPLEMENTS ATTACHED HERETO, IS TRUE AND CORRECT TO THE BEST OF OUR KNOWLEDGE AND BELIEF.

Date

7/18/61



Melpar, Inc.  
Applicant named in item 1

By: *[Signature]*  
P. E. Ritt  
Director of Research  
Title of certifying official

WARNING.—18 U. S. C., Section 1001; Act of June 25, 1948, 62 Stat. 749 makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States or to any officer within its jurisdiction.

8) Type of Training

Bruno M. Vasta - Biochemist.

B. S. Chemistry, Georgetown University

M. S. Biochemistry, George Washington University

presently enrolled for Ph. D. program in Biochemistry at George Washington University.

Mr. Vasta has worked for the U. S. Department of Agriculture's ARS Minerals Nutrition Laboratory. While at this laboratory he conducted experiments on the absorption of various ions by roots, using excised root techniques and radioactive isotopes of rubidium, potassium, strontium, phosphorous, and sulfur.

Other programs at the ARS Mineral Nutritional Laboratory included investigations of the mechanism of formation of high energy bonds during the uptake and utilization of  $PO_4^{-3}$ ; the mechanism of absorption of ions into living cells; isolation of the functional units (reactions of the cells); and characterizing of the role of  $PO_4^{-3}$  uptake in energy metabolism (cytochrome chain). These investigations necessitated the use of radioisotope techniques both as tracers and in isotopic dilution procedures.

In addition to the above experience Mr. Vasta has had a 6 month formal course on radiation techniques at George Washington University and a 6 week formal course at Oak Ridge, Tenn.

SUMMARY:

	<u>Type of Training</u>	<u>Where Trained</u>	<u>Duration</u>	<u>on the job</u>	<u>formal course</u>
8 (a)	Principles and practices of radiation	U.S. Dept. of Agriculture George Wash. University Oak Ridge, Tenn.	3½ yrs. 6 months 6 weeks	X	X X
8 (b)	Radioactivity measurement standardization and monitoring tech. and instruments	U.S. Dept. of Agriculture George Wash. University Oak Ridge, Tenn.	3½ yrs. 6 months 6 weeks	X	X X
8 (c)	Mathematics and calculation basic to the use and measurement of radioactivity	U.S. Dept. Of Agriculture George Wash. University Oak Ridge, Tenn.	3½ yrs. 6 months 6 weeks	X	X X
8 (d)	Biological effects of radiation	U. S. Dept. of Agriculture George Wash. University Oak Ridge, Tenn.	3½ yrs. 6 months 6 weeks	X	X X

DUPLICATED  
FOR DIV. OF COMPLIANCE

20006

9) Experience with Radiation

<u>Summary</u>	<u>Isotope</u>	<u>Max Amt.</u>	where <u>experience</u>	<u>Duration</u>	<u>Type of use</u>
Bruno M. Vasta	Rb86	Millicuries	U. S. Dept.	3½ yrs.	Experimental tracer & isotopic dilution proceedures.
	P32	Millicuries	Agriculture		
	Sr89	Microcuries	"		
	K42	Microcuries	"		
	S35	Microcuries	"		