

THE JOHNS HOPKINS UNIVERSITY  
APPLIED PHYSICS LABORATORY

8621 GEORGIA AVENUE  
SILVER SPRING, MARYLAND 20910

TELEPHONE  
776-7100  
589-7700  
AREA CODE 301

July 9, 1970

Director  
Langley Research Center  
Langley Station  
Hampton, Virginia 23365

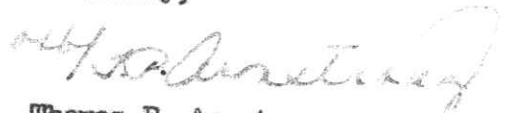
Attention: Technical Representative of the  
Contracting Officer  
Contract NASI-5700, Mail Stop 117

Dear Sir:

Enclosed please find copies of a revised accelerator  
use request and experiment summary sheet for our proposed cali-  
bration run at S.R.E.L. We are informed by Dr. Welsh that we  
will probably be scheduled for two shifts on Sunday, July 26.  
We will plan to begin setup on July 24 (Friday).

Thank you very much.

Sincerely,



Thomas P. Armstrong  
Co-Investigator  
CPME Experiment

TPA:jgs

Enclosures

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July 9, 1970

Dr. Robert Siegel, Director  
Space Radiation Effects Laboratory  
11970 Jefferson Avenue  
Newport News, Virginia 23606

Dear Dr. Siegel:

Here are copies of the revised and corrected  
accelerator use request and summary sheet for our proposed  
calibration run. It is our understanding from conversations  
with Dr. Welsh that we will probably be scheduled for two  
shifts on Sunday, July 26. We will work on that assumption  
for the present time. We will plan to begin setup the pre-  
ceding Friday morning, July 24.

Thank you very much for all your assistance.

Sincerely,



Thomas P. Armstrong  
Co-Investigator  
CPME Experiment

TPA:jgs

Enclosures



- 9) Machine Requirements - We require low intensity ( $10^2$  to  $10^3$  protons/sec) beams of stochastically dispersed protons delivered to the proton target area. Beam size is not critical - 1" to 2" diameters are satisfactory. We propose to increment downwards from maximum energy through the lowest feasible energy as follows:

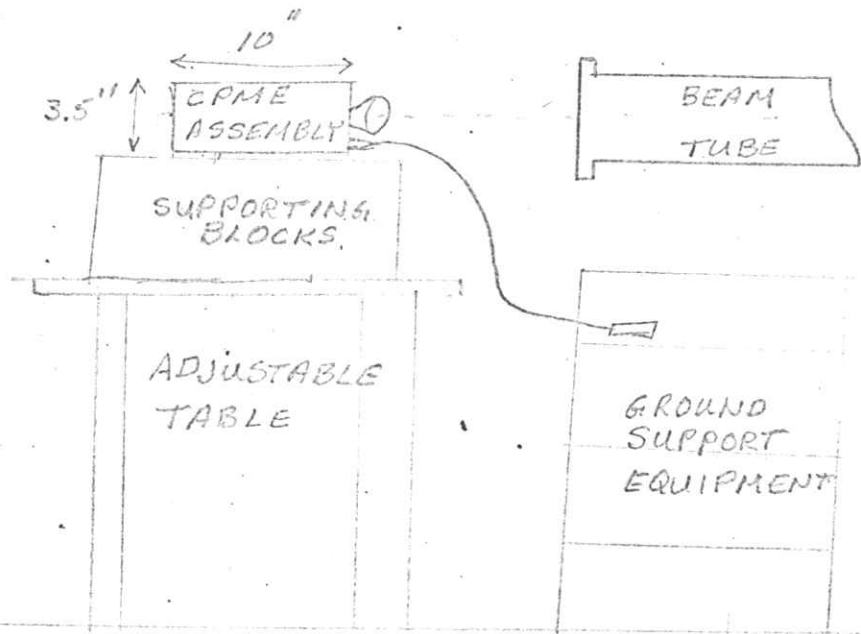
*SREL Designation*

↓	<u>Beam #</u>	<u>Nominal Energy</u>
1	CP-9	576 Mev
2	CP-10	520 Mev
3	CP-11	470 Mev
4	CP-12	418 Mev
5	CP-13	364 Mev
6	CP-14	312 Mev
7	CP-15	256 Mev
8	CP-16	208 Mev
8A	*	180 Mev
9	CP-17	142 Mev
9A	*	120 Mev
9B	*	100 Mev
10	CP-18	85 Mev
11	CP-19	60 Mev
12	CP-20	30 Mev

\* New Intermediate Energy Beams Desired.

11) Arrangement of Experiment (Block Diagram with Dimensions):

PROTON  
TARGET  
AREA



12) Equipment Pool Items Required: (See Attached)

13) Data Acquisition System Required: (See 12)

14) Special SREL Facilities, Space Equipment or Services, Not Otherwise Listed, which you desire to use: T.V. Monitor in PTA

15) Special Beam Requirements or Non-Standard Operations Required: Stochastic spreading of beam; Precaution against more than  $\sim 10^6$  particles/sec into CPME assembly.

16) Describe Any Hazardous Materials to be Used: none

12) Equipment Required from S.R.E.L. Pool

<u>#</u>	<u>Description</u>
2	Ortec Model 408 Biased Amplifiers
2	Ortec Model 411 Pulse Stretchers
2	Ortec Model 417 Discriminators
15	Chronetics Nanocounter 100 Dual Scalars
2	Canberra Model 1410 Linear Amplifiers
1	Baird Atomic CS-905 Timer
2	Ortec Model 401A Powered NIMS Bins
2	Portelevator Elevating Tables
1	Nuclear Data ND-510 Pulse Height Analyzer System
1	RIDL Model 24-2 Pulse Height Analyzer System
1	T.V. Monitor
1	Tektronix Oscilloscope Model 454
120	50 ohm Patch Cables



17) The purpose of this experiment is to calibrate the Charged Particle Measurement Experiment for IMP H and J. A description of the experiment is attached. Briefly stated the specific objectives are:

- (a) Establishing the position and relative shape of proton pass bands P9 (50 to 100 Mev), P10 (100 to 170 Mev) and P11 (170 to 500 Mev).
- (b) Measuring the contribution of inelastic proton events to channels which are expected to respond predominantly to alpha particles and  $Z \geq 3$  nuclei.
- (c) Verify proper operation of the anticoincidence shielding of the solid state detector telescope and of the Geiger-Mueller tubes.



SREL RADIOACTIVE MATERIAL CONTROL: IMPORTATION REQUESTDate: 9 July 1970

- 1) User's Name: Dr. S. M. Krimigis  
Organization: The Johns Hopkins University/Applied Physics Laboratory  
Complete mailing address: 8621 Georgia Avenue  
Silver Spring, Maryland 20910 Telephone: (301) 953-7100
- 2) Date of radioactive material arrival at SREL: 24 July 1970 Ext. 2626  
Duration radioactive material will be at SREL: 3 days  
(1) Americium 241 and Strontium 90
- 3) Isotopic composition of radioactive material: (2) Cobalt 60  
Stainless steel cylinders with sources covered by  
Physical state: Ni foils and epoxy sealed.  
Strength (state units and type of radiation precisely): (1) .0098mc  $\alpha$  + .0098mc  $\beta$   
(2) 0.2 mc  $\gamma$  / Sum  $\cong$  0.21mc total  
Dimensions: (1) .625" dia x 1" long (2) .250" dia x 0.7" long
- 4) Size of container: Lead cylinder (3" dia x 5" long) surrounded by wood shipping  
case (1'x1'x1')  
Weight: ~ 60 lbs.
- 5) Activity at container surface: 1.5 mr/hr.  
Activity at 6 inches from container: 0.7 mr/hr.  
Comments: \_\_\_\_\_
- 6) Planned use of radioactive material: Check out of radiation experiment
- 7) Exactly where in SREL do you plan to store radioactive material: proton  
target area  
Exactly what shielding will you provide in the storage area: \_\_\_\_\_  
shipping containers (see 4)
- 8) Do you foresee any special problems: no
- 9) Signature of radioactive material owner authorizing SREL health physics to have  
primary control of such material while at SREL: Original signed by  
S. M. Krimigis

## SPACE RADIATION EFFECTS LABORATORY

EXPERIMENT SUMMARY SHEET

Date Received at SREL \_\_\_\_\_

Experiment Number \_\_\_\_\_

For Scheduling Period \_\_\_\_\_

EXPERIMENT TITLE        Calibration of CPME for IMPs H and J       PRINCIPAL INVESTIGATOR(S)        Dr. S. M. Krimigis       ORGANIZATION(S)        The Johns Hopkins University/Applied Physics Laboratory       Address        8621 Georgia Avenue, Silver Spring, Maryland 20910       Telephone        (301) 953-7100, Ext. 2626       

CHOICE	# SHIFTS	PRIME OR PARASITE	DATES REQUESTED	ROOM OR BEAM AREA	BEAM AND POLARITY
1st	2	Prime	July 26	PTA	Protons
2nd					
3rd					

This experiment was approved by the  NASA Radiation Experiment Panel, or the  SREL Users Advisory Committee, on (date) \_\_\_\_\_ for \_\_\_\_\_ prime shifts and \_\_\_\_\_ parasite shifts, of which \_\_\_\_\_ prime and \_\_\_\_\_ parasite shifts have already been used.

This run is requested to be (during, just before, just after) experiment number \_\_\_\_\_.

Nuclear Data Interface Required?        No        (Submit separate application to DAS if yes.)

Equipment Pool Needs: Scalers \_\_\_\_\_, Discr. \_\_\_\_\_, Coinc. Ckts. \_\_\_\_\_

SEE ATTACHED Other \_\_\_\_\_

Special Requests, Hazardous Materials, Comments, etc.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Original signed by  
Signed        S. M. Krimigis       

Date        9 July 1970

12) Equipment Required from S.R.E.L. Pool

<u>#</u>	<u>Description</u>
✓2	Ortec Model 408 Biased Amplifiers
✓2	Ortec Model 411 Pulse Stretchers
✓2	Ortec Model <sup>420</sup> 417 Discriminators SCA
15 ①	Chronetics Nanocounter 100 Dual Scalars
✓2	Canberra Model 1410 Linear Amplifiers
1	Baird Atomic CS-905 Timer
✓2	Ortec Model 401A Powered NIMS Bins
2	Portelevator Elevating Tables
1	Nuclear Data ND-510 Pulse Height Analyzer System
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