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PRIVACY ACT MATERIAL REMOVED

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June 30, 1978

Dr. Robert Conard
Senior Scientist
Medical Research Center
Brookhaven National Laboratory
Upton, New York 11973

Dear Bob:

On Thursday, June 22, 1978, I performed whole body radiation measurements on Mr. and Mr. . Mr. is a Health Aide on Bikini Island and resided there for four years after the period of testing. He was born on is 62.8 cm tall and weighs 56.6 kg. Additional anthropomorphic measurements for head, chest and trunk are on file at our Laboratory.

Mr. lives on Majuro Atoll approximately 400 miles south of Bikini, and was born on . He is 65.6 cm tall and weighs 79.3 kg. All other body measurements are likewise on file at our Laboratory. Mr. and Mr. were accompanied to our Laboratory by Mr. Oscar DeBrum, Mr. Bill Scott and Dr. Jan Naidu.

The first measurement performed on Messrs. and utilized a 20 x 10 cm NaI(Tl) detector with the subject in the standard "chair" position. In this configuration it was possible to determine the whole body content of Cs-137 and K-40 after suitable control subjects (i.e., men of similar height and weight) had been subtracted. Results for these two nuclides for each of these individuals is given below and in Figures 1-5.

Mr.	Cs-137 = 1.72±0.004	µCi
	K-40 = 0.13±0.01	µCi
Mr.	Cs-137 = 15.9±0.500	nCi
	K-40 = 0.12±0.01	µCi

*Error terms represent counting statistics only - 1 S.D.
**Values obtained by Dr. Stan Cohn for Cs-137 were 1.62 µCi for Mr. and 25.0 nCi for Mr. . These values are in good agreement with the values measured at our Laboratory.

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In addition to these whole body measurements, thin crystal dual NaI-CsI(Tl) detectors were used to determine the possible presence of actinide nuclides in the skull (head) and lungs (thorax). By subtraction of a control subject, it was possible to remove the contribution from the 1.46 MeV gamma from K-40. A suitable Cs-137 phantom was then subtracted to account for the contribution of the 0.66 MeV gamma of barium-137 m and the 32 keV X ray characteristic of barium. The resulting count rate in the Am-241 60 keV energy region was, as seen in Figures 6 and 7, essentially non-significant and not different from the control subject. It is concluded, therefore, that there is no detectable Am-241 in either subject at this time of measurement. Similarly, there was no Pu-239 X-ray peak observable in the net spectra obtained by the procedure described: It has been calculated that with 1.72 μCi of Cs-137 present, our lower limit of detection for Am-241 in the skull is approximately 200 pCi.

For your information, I have enclosed a copy of the Laplander (reindeer herder) population article that I discussed with you recently. I think it is important that many of these people are recorded as having Cs-137 body burdens similar to those of the Bikini residents, and I have just sent off a letter to our associates at Dr. Miettinen's laboratory to see if there is any epidemiological health evidence available for this group.

I look forward to our continued collaboration in this area. If you have any questions as to the meaning of any result, please don't hesitate to call.

Very truly yours,

Norman Cohen, Ph.D.
Assistant Professor of
Environmental Medicine

NC/j

Enclosures

cc: Dr. M. Eisenbud
Dr. M.E. Wrenn
Dr. H. Spitz
Dr. S. Cohn
Dr. N. Greenhouse

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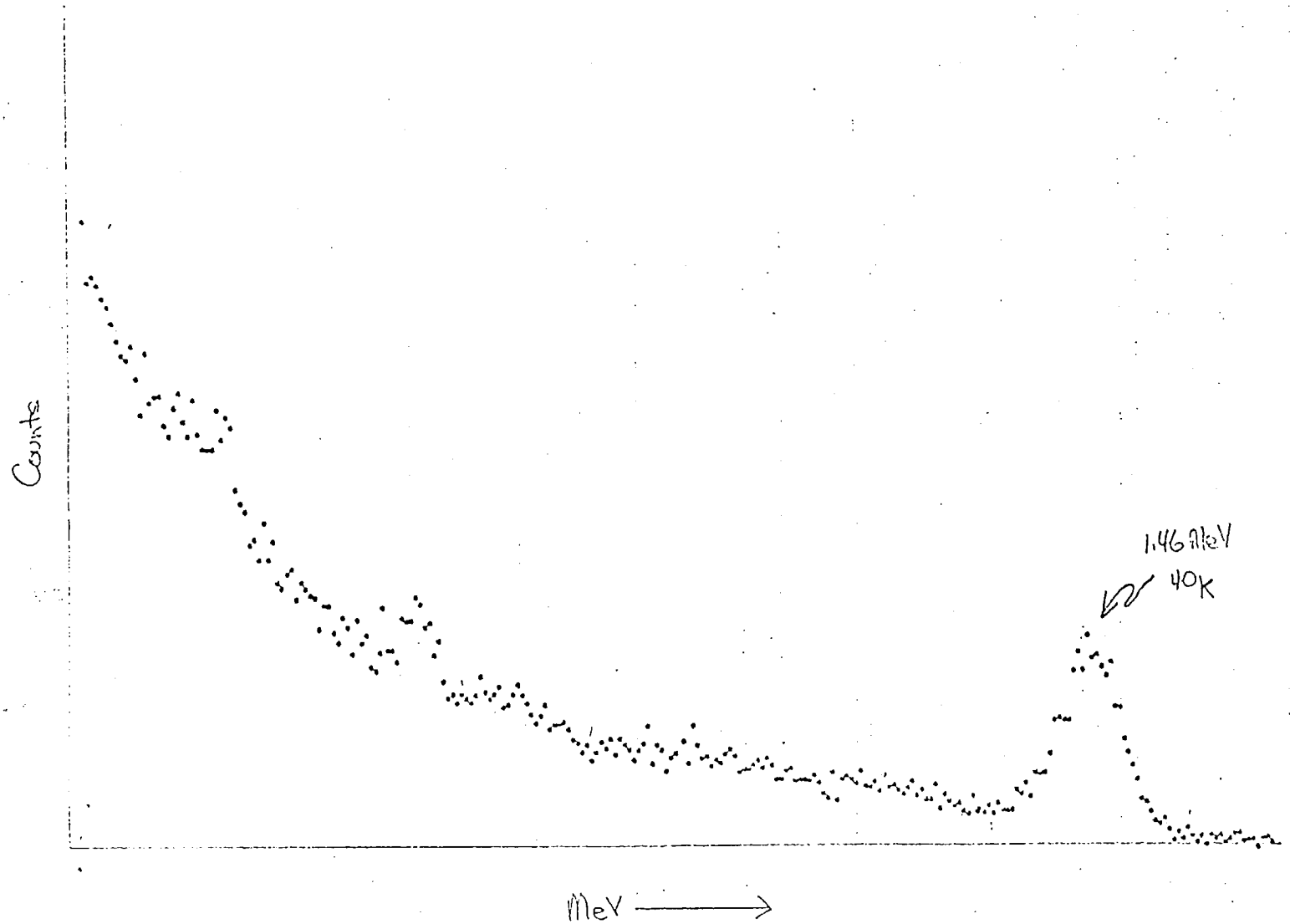
Fig. 1
Control WI, Chair
NaI (Tl) 8"x4"
30 Min - Gross



Counts

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Fig. 2
Mr. Nat (TL) 8"x4" 1-Chair
10 Min. - Grass

0.662 MeV
^{137}Cs (^{137m}Ba)

MeV

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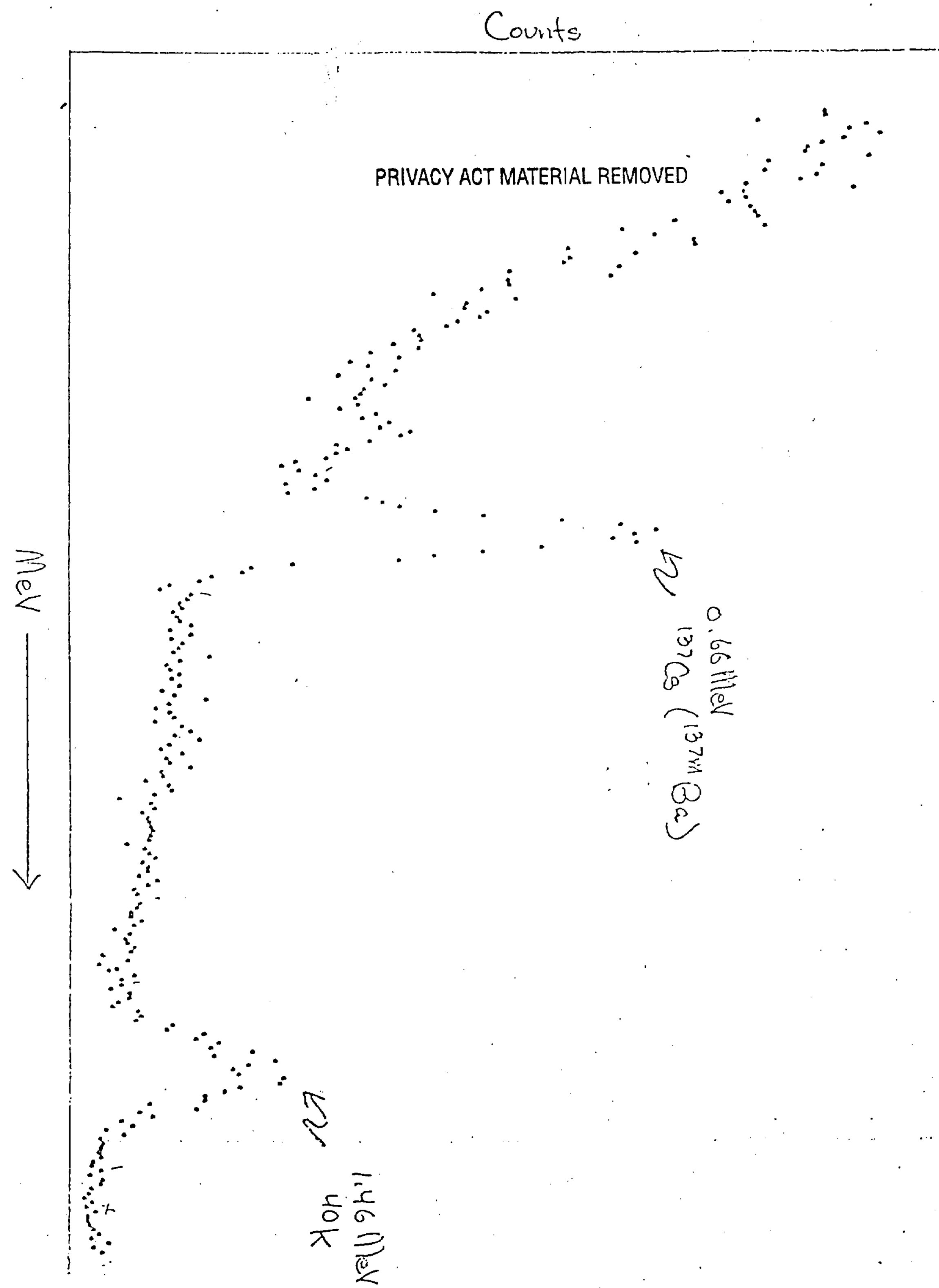

Fig. 3
Nv.
NaI(Tl) 8"x4"
15 Min. – Gross

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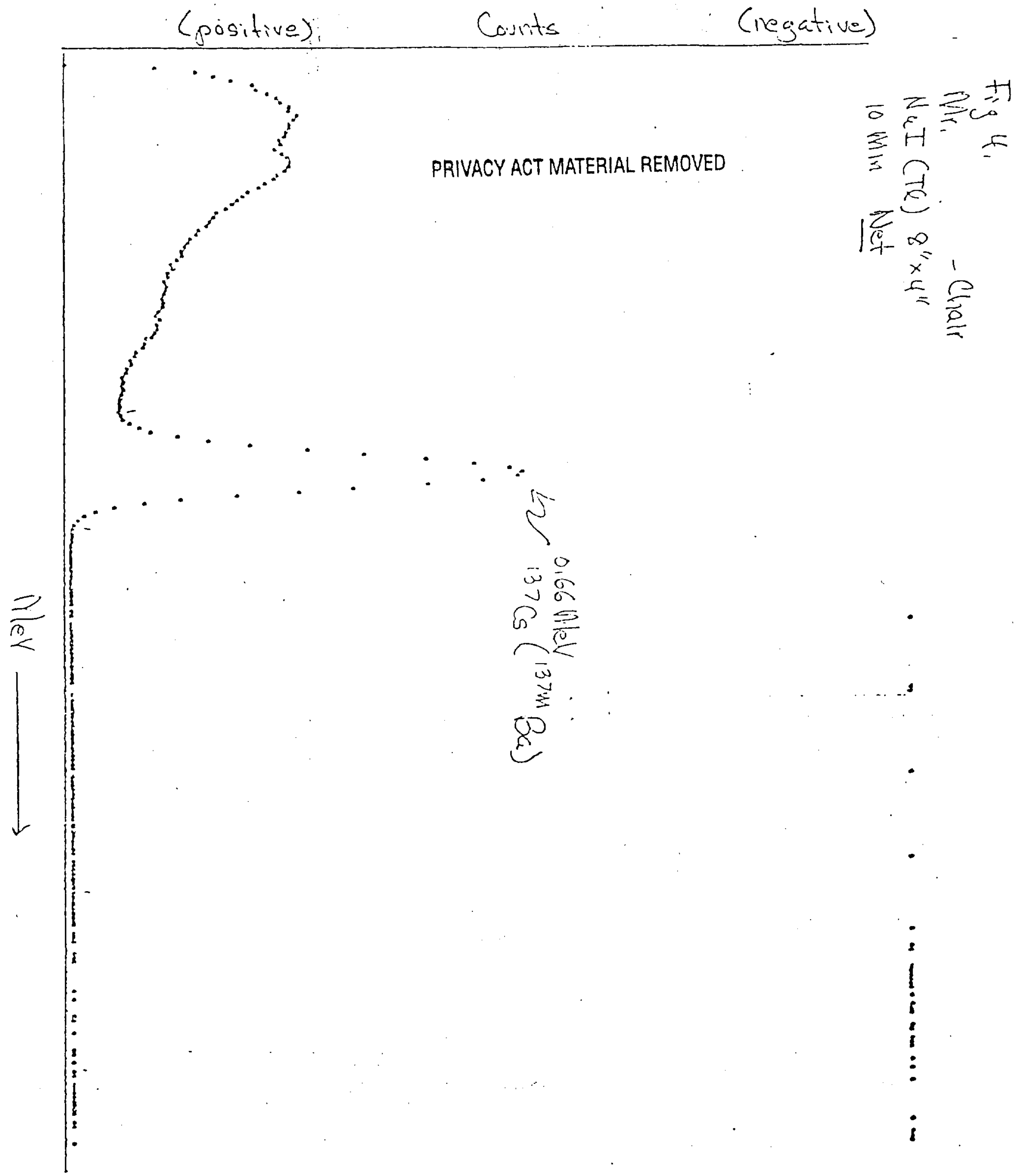

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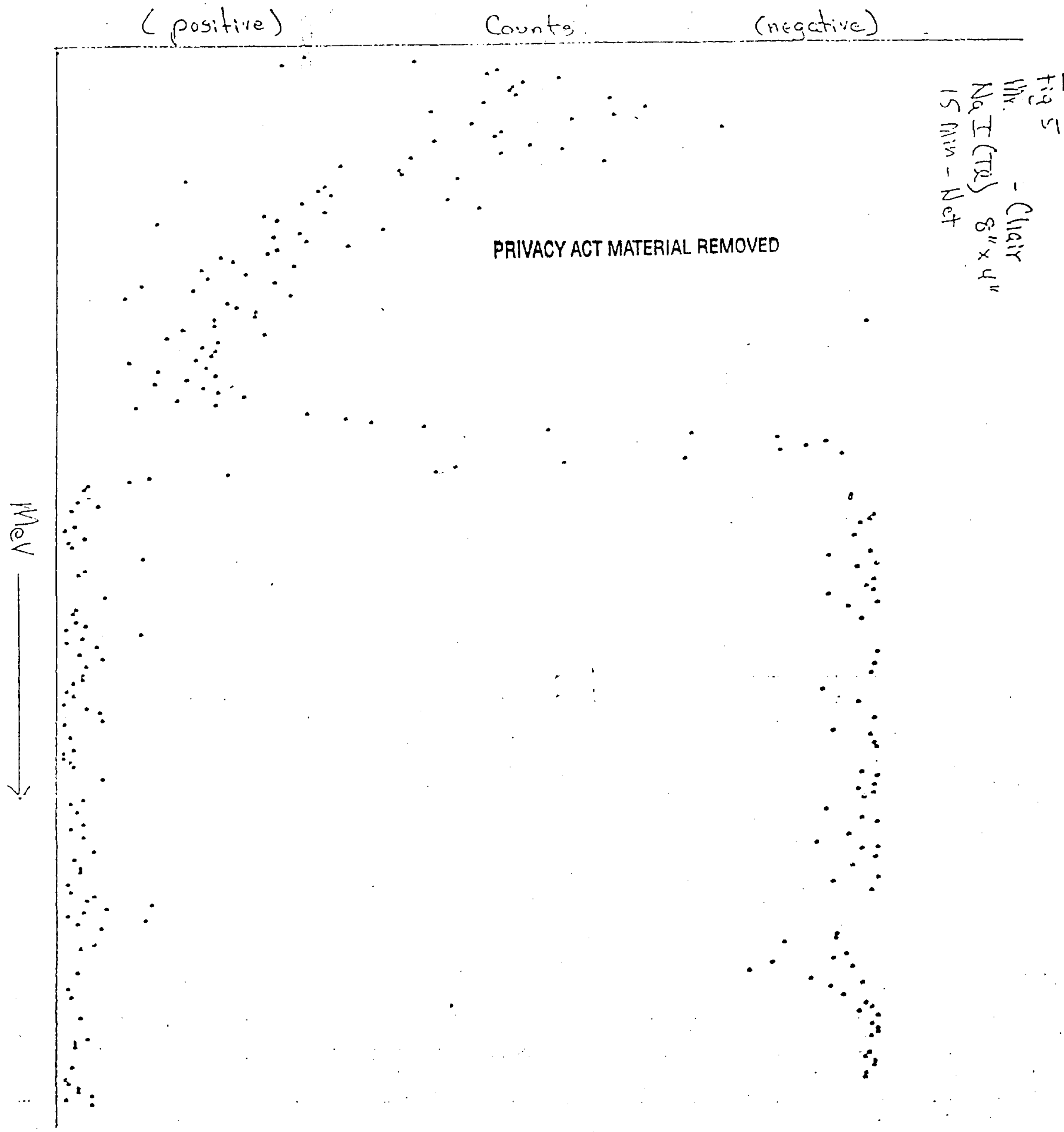

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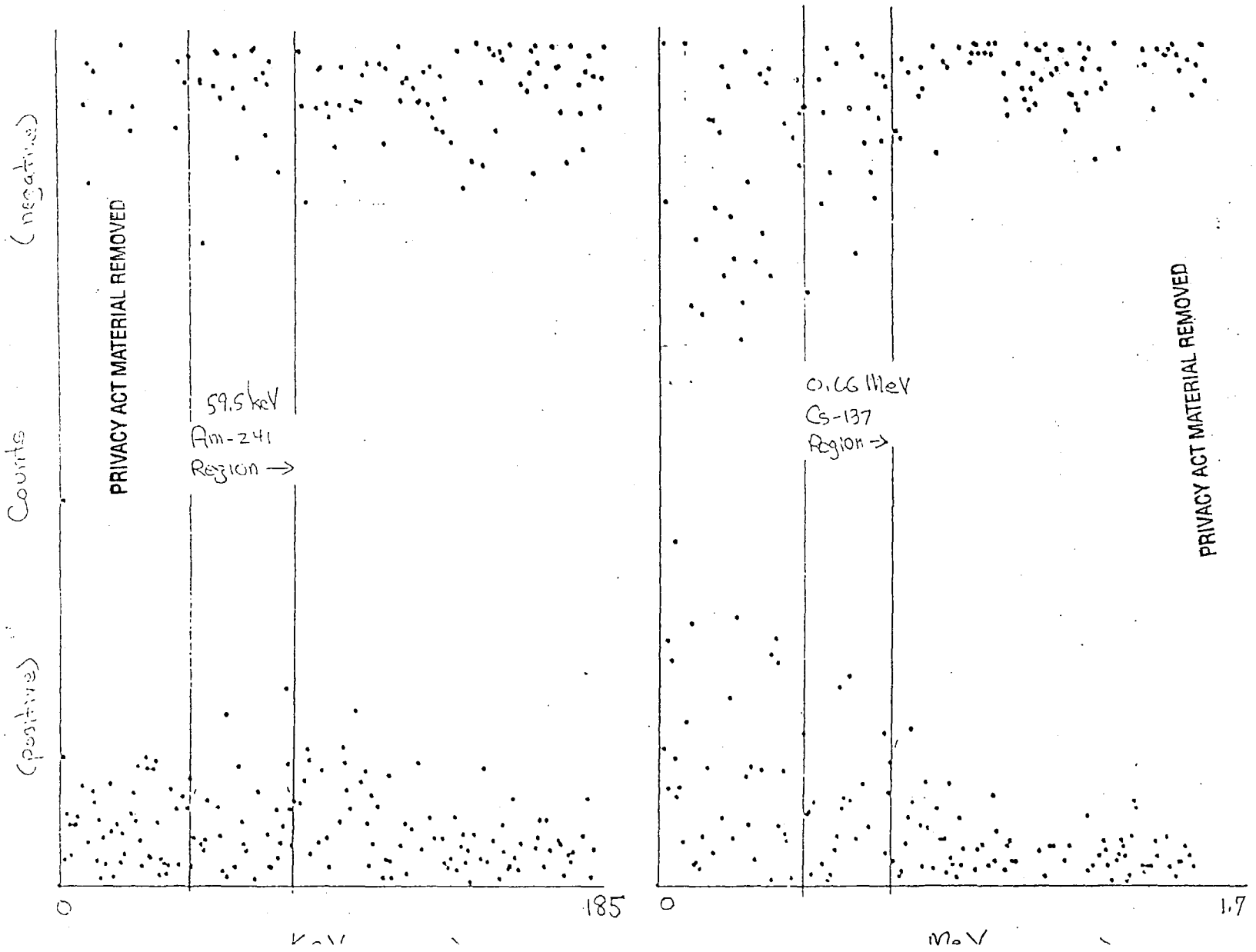
Fig 6.
Mr. [redacted] - Anterior Thorax - Net Spectrum
NaI CsI(Tl) - 2 Detectors



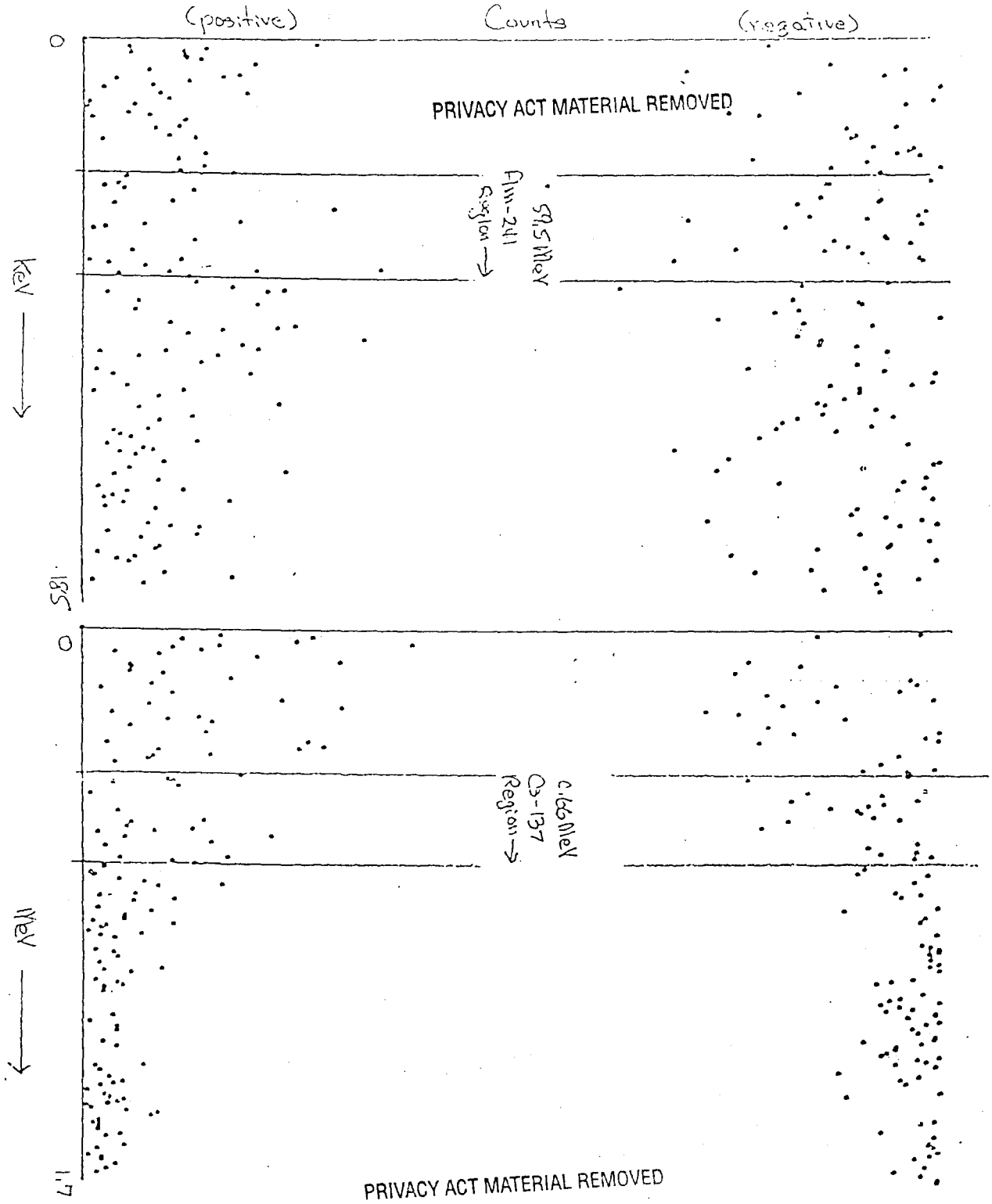


Fig. 7
Mr.
- Head - Net Spectrum
NaI Cs I (Tl) - 3 detectors

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