

**CALIBRATION RECORDS  
FOR INSTRUMENTS USED FOR  
RADIOLOGICAL SURVEYS**

**JUNE 27, 2000**

**VOLUME 4 OF 7**

**WESTINGHOUSE ELECTRIC CORPORATION  
BLAIRSVILLE, PA**

**CALIBRATION RECORDS  
FOR INSTRUMENTS USED FOR  
RADIOLOGICAL SURVEYS**

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CALIBRATION RECORDS  
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RADIOLOGICAL SURVEYS

Purpose

The Westinghouse Blairsville Site utilized nuclear materials during the period of the mid to late 1950's to the early part of the 1960's. Work was performed both under licenses with the atomic Energy Commission and for the Bettis Atomic Power Laboratory. Although all work ceased during the 1960's, subsequent radiological surveys and investigations, starting in 1993, established that some residual radioactivity, primarily in underground piping and subsurface soil contamination, existed on the site. During the period of 1993 through the present, additional remediation work and radiological surveys have been conducted to establish that the site can be released for unrestricted use. This series of reports documents the results of the final status radiological surveys subsequent to the various remediation efforts.

Scope

This report compiles information on the calibration of the radiological survey instruments, which were used to measure the radiation levels presented in the other reports issued for this project. In each report, which documents a final radiological survey, the data sheets that record the measured radiation levels also provide specific information with respect to the specific instrument used to make the measurement. This report provides the necessary information to establish the entire calibration history of each specific instrument. These instruments have been used for the Westinghouse sites at Blairsville, Cheswick, and Forest Hills (now Viacom, Inc.). Therefore these calibration records are applicable to all these sites.

Discussion

All instruments used for radiological surveys on this project were calibrated on a frequency depending on the specific instrument. The calibration history for every instrument used on the project is summarized in appendix A, which cover the years 1993 through 1999. These summaries also provide a reference to a "Code Number." Included with this report in Appendix B are sheets labeled "Code Number 1" through "Code Number 70." Each of these "codes" incorporates the calibration records as appropriate for the specific instrument.

The certification sheets for each of the source standards used by the project to calibrate the instruments for conversion of CPM to DPM are included in Appendix C. Other calibrations were performed at other licensed operations as noted by the calibration records and no information on Source Certification is provided here.

**CALIBRATION RECORDS  
FOR INSTRUMENTS USED FOR  
RADIOLOGICAL SURVEYS**

List of Volume Contents

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**CODE NUMBER 9 & 10**

**REPORT #001**



AUG 24 1993

Rec'd  
UPS  
8-24-93

HEALTH PHYSICS inc.

2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

**CERTIFICATE OF CALIBRATION**

13#

|  |                                |
|--|--------------------------------|
| SHIPPING ADDRESS                             | BILLING ADDRESS (If Different) |
| WEC<br>Ave. "A" & West St.<br>Pgh., PA 15112 | SAME                           |

CONTACT: L. Smith PHONE: ( ) — DATE: 7/20/93 P.O.# MA39302-3

Receiving Comments: Calibration, Using AHP Gas!

Instrument Received:  Within Toler.  $\pm 10\%$    $\pm 10-20\%$   Out Toler.  Requires Repair

Mfg. Inst. Eberline Model # PAC-46-3 Serial # 4472  
 Detector " Model # AC21/AC-21B Serial # Alpha/Beta: Alpha

CALIBRATION  REPAIR  SALE  LOAN By: J. Douglas

| scale | source       | reading | scale | source       | reading | scale     | source          | reading   |
|-------|--------------|---------|-------|--------------|---------|-----------|-----------------|-----------|
| ON    | mR/hr<br>cpm | cpm     | ON    | mR/hr<br>cpm | cpm     | AC<br>21  | Pu-239<br>Alpha | 50%<br>ST |
|       | 400          | 410     |       | 40000        | 40000   | AC<br>21B | Sr-90<br>Beta   | 60%<br>ST |
|       | 4000         | 4000    |       | 400000       | 380000  |           |                 |           |

Calibration Source:  GAMMA  ALPHA  BETA  ELECTRONIC  OTHER

Description:  ra-226  cs-137  pu-239  sr-90  mp-1(500)

RESPONSE GRAPH N/A

|  |  |  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |  |  |  |  |

PROBE EFFICIENCIES ST  
 Alpha 50 % Beta 60 %  
 Check Source Reading N/A  
 Battery Check Reading 4K cpm  
 Detector Angle Perpendicular  
 Corrections N/A  $\pm 10\%$  E.P.M.

TEMP/HUMIDITY 70.3°F / 43%

Maintenance & Comments Replaced (1) #504 5pk battery, OTHER - Batteries OK, Audio - OK, (Adjusted Alpha sensitivity to mfg specs), Returned without Gas.  
Tested, Inspected & Calibrated

|                   |                 |                 |       |   |            |          |                |
|-------------------|-----------------|-----------------|-------|---|------------|----------|----------------|
| CALIBRATION       |                 |                 | 4000  | QA Dept.                                    | <u>JG</u>  | Warranty |                |
| LABOR             | <u>EXTRA</u>    | <u>PROBE</u>    | 30.00 | Shipping                                    | <u>UPS</u> | Date     | <u>7/20/93</u> |
| MATERIALS & SALES | <u>(1) #504</u> | <u>Battery</u>  | 6.65  | Pick-Up                                     |            | Date     | <u>7/7</u>     |
| SHIPPING          | <u>UPS</u>      | <u>(1) Unit</u> | 10.39 | This Certificate Expires In <u>2</u> Months |            |          |                |
|                   |                 |                 |       | Re-Calibrate On Or Before <u>11/20/93</u>   |            |          |                |
|                   |                 |                 |       | Job ID # <u>52469</u>                       |            |          |                |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.

ALPHA / BETA  
EFFICIENCY FOR VENDOR CALIBRATION

INSTRUMENT: [ ] E-520 [✓] PAC-4G S/N #: 4478 CODE #: 9/10

| CALIBRATION SOURCE INVENTORY |        |        |                |               |        |        |                |
|------------------------------|--------|--------|----------------|---------------|--------|--------|----------------|
| CHECK IF USED                | TYPE   | NUMBER | ACTIVITY (DPM) | CHECK IF USED | TYPE   | NUMBER | ACTIVITY (DPM) |
| ✓                            | Pu-239 | 7345   | 2210           | ✓             | Tc-99  | 762/84 | 1310           |
| ✓                            | Pu-239 | 5308   | 31300          | ✓             | Tc-99  | 763/84 | 18700          |
| ✓                            | Pu-239 | 7346   | 231100         | ✓             | Tc-99  | 764/84 | 146000         |
| ✓                            | Pu-239 | 7347   | 2212000        |               | Cs-137 | 84-9   |                |
|                              | Tc-99  | 761/84 | 162            |               | Cs-137 | T-993  |                |

| ALPHA CALIBRATION             |                  |             |           |                     |                |                    |            |
|-------------------------------|------------------|-------------|-----------|---------------------|----------------|--------------------|------------|
| SOURCE NUMBERS                | CURRENT ACTIVITY | INST. RANGE | TOLERANCE | READING (GROSS CPM) | BACKGROUND CPM | READING (NET CPM)  | EFFICIENCY |
| 7345                          | 2209             | 0-500       | ± 10%     | 500                 | 0              | 500                | 22.6       |
| 5308                          | 31283            | 0-25K       | ± 10%     | 11000               | 0              | 11,000             | 35.2       |
| 7346                          | 230974           | 0-50K       | ± 10%     | 50,000              | 0              | 50,000             | 21.6       |
| 7347                          | 2318739          | 0-500K      | ± 10%     | 430,000             | 0              | 430,000            | 18.5       |
| EFFICIENCY FORMULA: CPM / DPM |                  |             |           |                     |                | AVERAGE EFFICIENCY | 19.9%      |

| BETA CALIBRATION              |                  |             |           |                     |                |                    |            |
|-------------------------------|------------------|-------------|-----------|---------------------|----------------|--------------------|------------|
| SOURCE NUMBERS                | CURRENT ACTIVITY | INST. RANGE | TOLERANCE | READING (GROSS CPM) | BACKGROUND CPM | READING (NET CPM)  | EFFICIENCY |
| 762/84                        | 1310             | 0-500       | ± 10%     | 350                 | 150            | 200                | 15.3       |
| 763/84                        | 18699            | 0-50K       | ± 10%     | 6000                | 150            | 5850               | 31.3       |
| 764/84                        | 145996           | 0-500K      | ± 10%     | 45000               | 150            | 44850              | 30.7       |
| EFFICIENCY FORMULA: CPM / DPM |                  |             |           |                     |                | AVERAGE EFFICIENCY | 25.8%      |

COMMENTS / REMARKS

SEE ATTACHED PRINTOUT FOR CURRENT DPM VALUES OF ALL SOURCES.

CALIBRATED BY: Larry Smith SIGNATURE: *[Signature]* DATE: 8-26-93

# Source Inventory for Forest Hills Health Physics - 8/26/93

Total number of sources: 16

| Serial Number | Isotope | Type  | Half-Life | Original DPM | Original Date | Current Date | Decay Corrected DPM | uCi Content | Location |
|---------------|---------|-------|-----------|--------------|---------------|--------------|---------------------|-------------|----------|
| 84/9          | Cs-137  | Beta  | 11021     | 40210        | 1/1/1984      | 8/26/1993    | 32217               | 1.45E-02    | HPO - FH |
| T-993         | Cs-137  | Beta  | 11021     | 29900        | 9/15/1992     | 8/26/1993    | 29258               | 1.32E-02    | HPO - FH |
| U-295         | Po-210  | Alpha | 138       | 30600        | 9/15/1992     | 8/26/1993    | 5438                | 2.45E-03    | HPO - FH |
| 5308          | Pu-239  | Alpha | 8807815   | 31300        | 9/24/1974     | 8/26/1993    | 31283               | 1.41E-02    | HPO - FH |
| 7345          | Pu-239  | Alpha | 8807815   | 2210         | 9/24/1974     | 8/26/1993    | 2209                | 9.95E-04    | HPO - FH |
| 7346          | Pu-239  | Alpha | 8807815   | 231100       | 9/24/1974     | 8/26/1993    | 230974              | 1.04E-01    | HPO - FH |
| 7347          | Pu-239  | Alpha | 8807815   | 2320000      | 9/24/1974     | 8/26/1993    | 2318739             | 1.04E+00    | HPO - FH |
| MA176         | Pu-239  | Alpha | 8807815   | 5141         |               | 8/26/1993    | 5127                | 2.31E-03    | HPO - FH |
| P-1276        | Pu-239  | Alpha | 8807815   | 9900         |               | 8/26/1993    | 9873                | 4.45E-03    | HPO - FH |
| P5503         | Pu-239  | Alpha | 8807815   | 1635         |               | 8/26/1993    | 1631                | 7.35E-04    | HPO - FH |
| P5559         | Pu-239  | Alpha | 8807815   | 10835        |               | 8/26/1993    | 10806               | 4.87E-03    | HPO - FH |
| P5577         | Pu-239  | Alpha | 8807815   | 114260       |               | 8/26/1993    | 113953              | 5.13E-02    | HPO - FH |
| 761/84        | Tc-99   | Beta  | 77740000  | 162          | 9/10/1984     | 8/26/1993    | 162                 | 7.30E-05    | HPO - FH |
| 762/84        | Tc-99   | Beta  | 77740000  | 1310         | 9/11/1984     | 8/26/1993    | 1310                | 5.90E-04    | HPO - FH |
| 763/84        | Tc-99   | Beta  | 77740000  | 18700        | 9/11/1984     | 8/26/1993    | 18699               | 8.42E-03    | HPO - FH |
| 764/84        | Tc-99   | Beta  | 77740000  | 146000       | 9/14/1984     | 8/26/1993    | 145996              | 6.58E-02    | HPO - FH |



**CODE NUMBER 11**

**REPORT #001**

|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 1/14/99 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | Beta |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

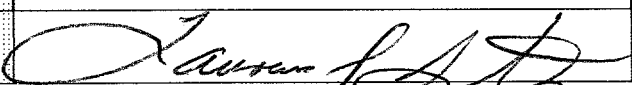
| SOURCE # | ACTIVITY<br>-dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 763/84   | 18699            | 34300           | 5                    | 6860                         | 183                        | 6677    |
|          |                  |                 |                      |                              |                            |         |
|          | BACKGROUND       | 913             | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6677    | 35.7       | 2.8                  | 35.7%              | 2.8                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1600 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6870   |                                | 3 HOURS                    | 6830   | 99.4%                          |
| 1 HOUR                     | 6930   | 100.9%                         | 3.5 HOURS                  | 6790   | 98.8%                          |
| 1.5 HOURS                  | 6910   | 100.6%                         | 4 HOURS                    | 6750   | 98.3%                          |
| 2 HOURS                    | 6970   | 101.5%                         | 4.5 HOURS                  | 6760   | 98.4%                          |
| 2.5 HOURS                  | 6810   | 99.1%                          | 5 HOURS                    | 6690   | 97.4%                          |

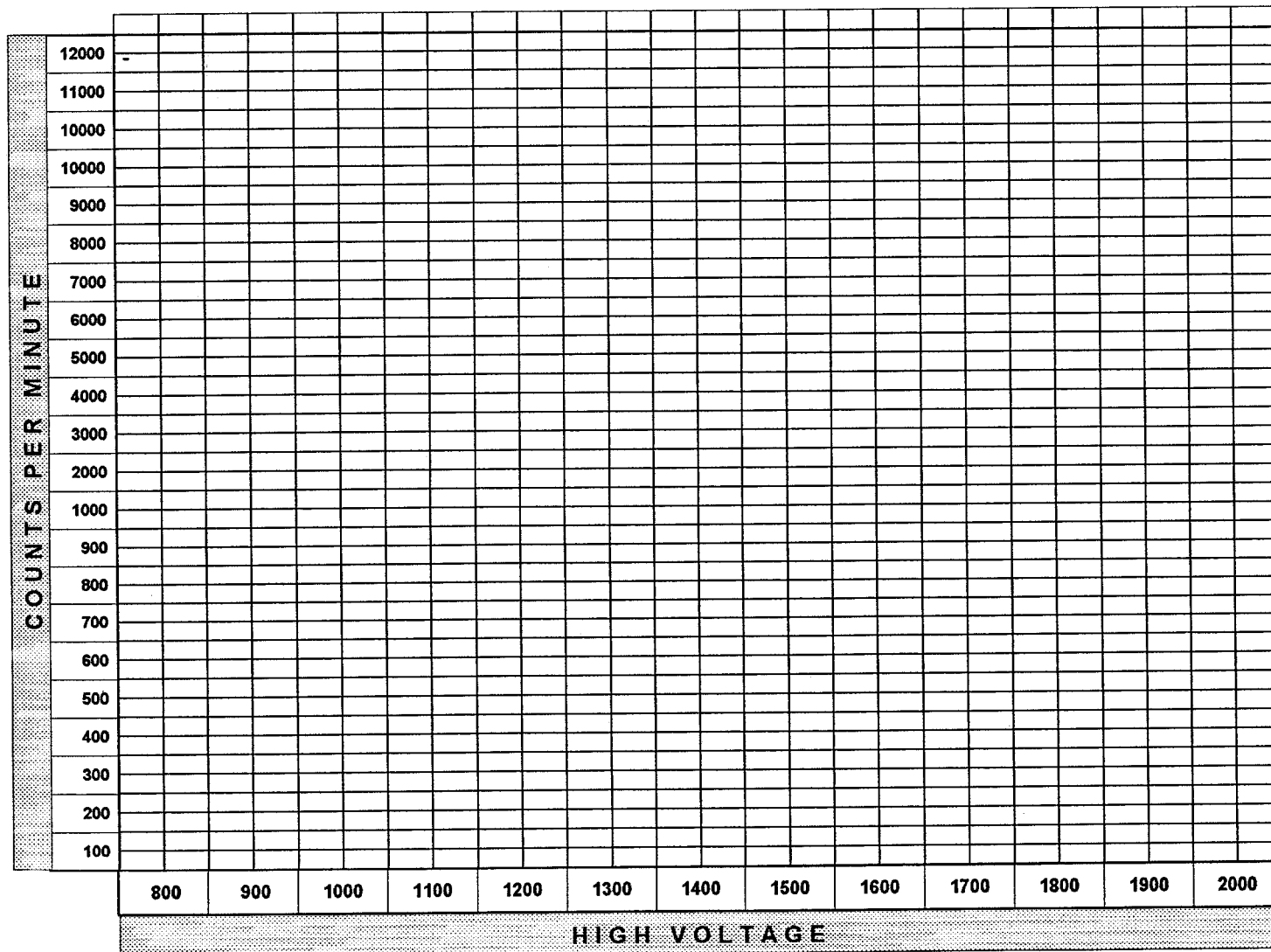
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |         |
|-------|---------|
| DATE: | 1/14/99 |
|-------|---------|

|           |                                     |
|-----------|-------------------------------------|
| COMMENTS: | Calibrated with Eberline 100A probe |
|-----------|-------------------------------------|

ALPHA / BETA: BETA

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 11     | 1650         | 7120   |
| 900          | -      | 1300         | 239    | 1700         | 7270   |
| 950          | -      | 1350         | 807    | 1750         | 7180   |
| 1000         | -      | 1400         | 2340   | 1800         | 7390   |
| 1050         | -      | 1450         | 3390   | 1850         | 8190   |
| 1100         | -      | 1500         | 4780   | 1900         | -      |
| 1150         | 4      | 1550         | 6010   | 1950         | -      |
| 1200         | 7      | 1600         | 7030   | 2000         | -      |



|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 10/7/98 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |                   |                 |                      |                              |                            |         |
|--|-------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| SOURCE #   | ACTIVITY<br>* dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
| 763/84   | 18699             | 35100           | 5                    | 7020                         | 200                        | 6820    |
|  |                   |                 |                      |                              |                            |         |
|  | BACKGROUND        | 1000            | 200                  |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6820    | 36.5%      | 2.74                 | 36.5%              | 2.74                         |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1600 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm2 PROBE |        |                                |                            |        |                                |
|--|--------|--------------------------------|----------------------------|--------|--------------------------------|
| ELASPED TIME<br>(in hours)               | COUNTS | PERCENT<br>(of original count) | ELASPED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
| INITIAL                                  | 6840   |                                | 3 HOURS                    | 6950   | 101.6%                         |
| 1 HOUR                                   | 6900   | 100.9%                         | 3.5 HOURS                  | 6810   | 99.6%                          |
| 1.5 HOURS                                | 6860   | 100.3%                         | 4 HOURS                    | 6850   | 100.1%                         |
| 2 HOURS                                  | 6860   | 100.3%                         | 4.5 HOURS                  | 6790   | 99.3%                          |
| 2.5 HOURS                                | 6700   | 98%                            | 5 HOURS                    | 6800   | 99.4%                          |

|                |             |
|----------------|-------------|
| CALIBRATED BY: | Larry Smith |
| SIGNATURE:     |             |

|       |         |
|-------|---------|
| DATE: | 10/7/98 |
|-------|---------|

|           |  |
|-----------|--|
| COMMENTS: | Calibrated with Eberline HP-100A probe |
|-----------|--|



|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 6/16/98 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

| SOURCE # | ACTIVITY<br>- dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 763/84   | 18699             | 34300           | 5                    | 6860                         | 202                        | 6658    |
|          |                   |                 |                      |                              |                            |         |
|          | BACKGROUND        | 1010            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6658    | 35.6%      | 2.8                  | 35.6%              | 2.8                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1600 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6820   | -                              | 3 HOURS                    | 6740   | 98.8%                          |
| 1 HOUR                     | 6890   | 101%                           | 3.5 HOURS                  | 6720   | 98.5%                          |
| 1.5 HOURS                  | 6910   | 101.3%                         | 4 HOURS                    | 6810   | 99.8%                          |
| 2 HOURS                    | 7010   | 102.7%                         | 4.5 HOURS                  | 6800   | 99.7%                          |
| 2.5 HOURS                  | 6960   | 102%                           | 5 HOURS                    | 6820   | 100%                           |

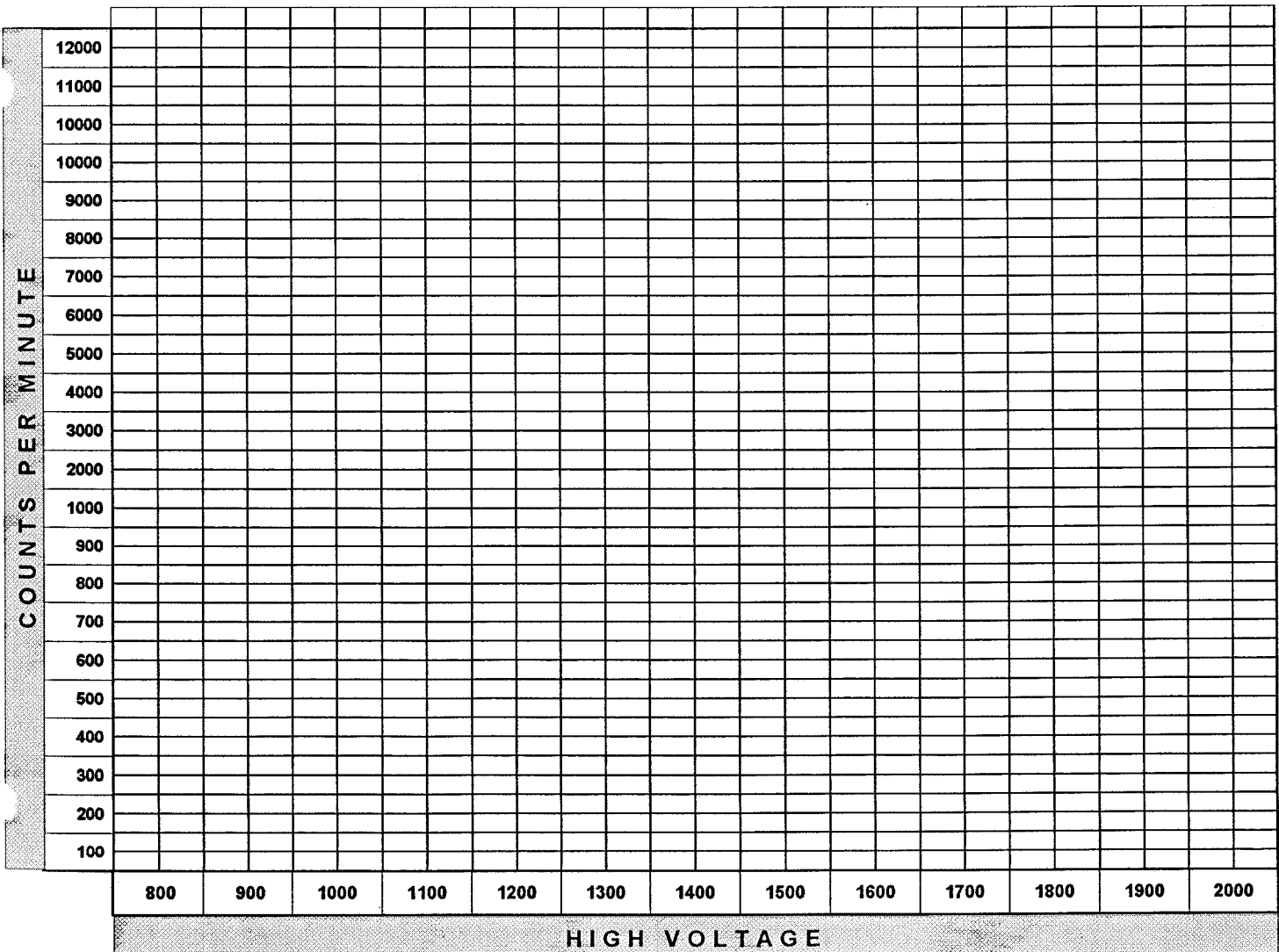
|                |                       |
|----------------|-----------------------|
| CALIBRATED BY: | Carmen Vergari        |
| SIGNATURE:     | <i>Carmen Vergari</i> |

|       |         |
|-------|---------|
| DATE: | 6/16/98 |
|-------|---------|

|           |  |
|-----------|--|
| COMMENTS: |  |
|-----------|--|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 19     | 1650         | 7060   |
| 900          | -      | 1300         | 270    | 1700         | 7121   |
| 950          | -      | 1350         | 1480   | 1750         | 7130   |
| 1000         | -      | 1400         | 2480   | 1800         | 7310   |
| 1050         | -      | 1450         | 3690   | 1850         | 8310   |
| 1100         | -      | 1500         | 4750   | 1900         | 12500  |
| 1150         | -      | 1550         | 5840   | 1950         | -      |
| 1200         | 6      | 1600         | 6890   | 2000         | -      |



|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 3/16/98 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |                   |                 |                      |                              |                            |         |
|--|-------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| SOURCE #   | ACTIVITY<br>- dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
| 763/84   | 18699             | 33500           | 5                    | 6700                         | 170                        | 6530    |
|  |                   |                 |                      |                              |                            |         |
|  | BACKGROUND        | 850             | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6530    | 34.9%      | 2.9                  | 34.9%              | 2.9                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1600 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm2 PROBE |        |                                |                            |        |                                |
|--|--------|--------------------------------|----------------------------|--------|--------------------------------|
| ELAPSED TIME<br>(in hours)               | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
| INITIAL                                  | 6680   | -                              | 3 HOURS                    | 6700   | 100%                           |
| 1 HOUR                                   | 6650   | 99.6%                          | 3.5 HOURS                  | 6680   | 100%                           |
| 1.5 HOURS                                | 6500   | 97.3%                          | 4 HOURS                    | 6650   | 99.6%                          |
| 2 HOURS                                  | 6480   | 97%                            | 4.5 HOURS                  | 6630   | 99.2%                          |
| 2.5 HOURS                                | 6600   | 99%                            | 5 HOURS                    | 6640   | 99.4%                          |

|                |                       |
|----------------|-----------------------|
| CALIBRATED BY: | Carmen Vergari        |
| SIGNATURE:     | <i>Carmen Vergari</i> |

|       |         |
|-------|---------|
| DATE: | 3/16/98 |
|-------|---------|

|           |                                       |
|-----------|---------------------------------------|
| COMMENTS: | Calibrated with Eberline HP100A probe |
|-----------|---------------------------------------|





|            |      |                  |    |       |          |
|------------|------|------------------|----|-------|----------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 12/16/97 |
|------------|------|------------------|----|-------|----------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |                  |                 |                      |                              |                            |         |
|--|------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| SOURCE #   | ACTIVITY<br>→dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
| 763/84   | 18699            | 35400           | 5                    | 7080                         | 194                        | 6886    |
|  |                  |                 |                      |                              |                            |         |
|  | BACKGROUND       | 969             | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6886    | 36.8%      | 2.7                  | 36.8%              | 2.7                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1600 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm2 PROBE |        |                                |                            |        |                                |
|--|--------|--------------------------------|----------------------------|--------|--------------------------------|
| ELAPSED TIME<br>(in hours)               | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
| INITIAL                                  | 7050   | -                              | 3 HOURS                    | 6960   | 98.7%                          |
| 1 HOUR                                   | 7020   | 99.6%                          | 3.5 HOURS                  | 6840   | 97%                            |
| 1.5 HOURS                                | 7000   | 99.3%                          | 4 HOURS                    | 6780   | 96.2%                          |
| 2 HOURS                                  | 6940   | 98.4%                          | 4.5 HOURS                  | 6860   | 97.3%                          |
| 2.5 HOURS                                | 6960   | 98.7%                          | 5 HOURS                    | 6880   | 97.6%                          |

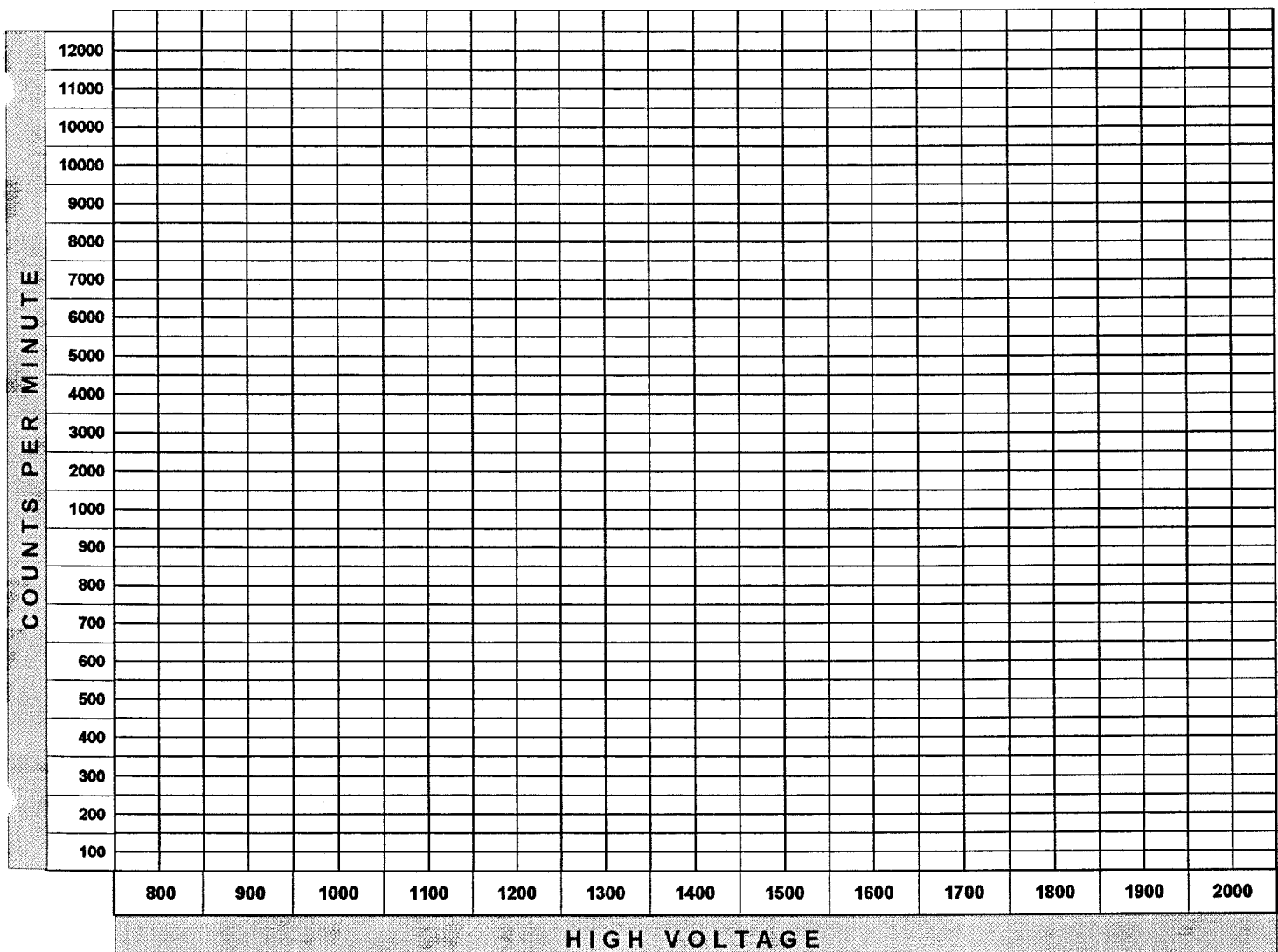
|                |                       |
|----------------|-----------------------|
| CALIBRATED BY: | Carmen Vergari        |
| SIGNATURE:     | <i>Carmen Vergari</i> |

|       |          |
|-------|----------|
| DATE: | 12/16/97 |
|-------|----------|

|           |   |
|-----------|---|
| COMMENTS: | Calibrated with Eberline HP -100A Probe |
|-----------|---|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 16     | 1650         | 7500   |
| 900          | -      | 1300         | 328    | 1700         | 7500   |
| 950          | -      | 1350         | 1420   | 1750         | 7500   |
| 1000         | -      | 1400         | 2480   | 1800         | 7680   |
| 1050         | -      | 1450         | 3670   | 1850         | 9140   |
| 1100         | -      | 1500         | 4880   | 1900         | 11900  |
| 1150         | -      | 1550         | 6490   | 1950         | -      |
| 1200         | 5      | 1600         | 7090   | 2000         | -      |



|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 9/16/97 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

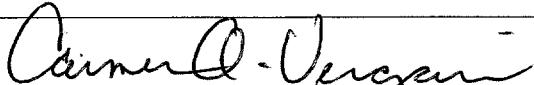
| SOURCE # | ACTIVITY<br>dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-----------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 763/84   | 18700           | 35900           | 5                    | 7180                         | 197                        | 6983    |
|          | BACKGROUND      | 987             | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6983    | 37.3%      | 2.7                  | 37.3%              | 2.7                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1600 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm<sup>2</sup> PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 7350   | -                              | 3 HOURS                    | 7160   | 97.4%                          |
| 1 HOUR                     | 7200   | 98%                            | 3.5 HOURS                  | 7200   | 98%                            |
| 1.5 HOURS                  | 7250   | 98.6%                          | 4 HOURS                    | 7250   | 98.6%                          |
| 2 HOURS                    | 7100   | 96.6%                          | 4.5 HOURS                  | 7120   | 96.9%                          |
| 2.5 HOURS                  | 7120   | 96.9%                          | 5 HOURS                    | 7170   | 97.5%                          |

|                |   |
|----------------|---|
| CALIBRATED BY: | Carmen A. Vergari   |
| SIGNATURE:     |  |

|       |         |
|-------|---------|
| DATE: | 9/16/97 |
|-------|---------|

|           |   |
|-----------|---|
| COMMENTS: | Calibrated with Eberline HP 100 A Probe |
|-----------|---|



|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 6/10/97 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | Beta |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |              |              |                   |                           |                         |         |
|--|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| SOURCE #   | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
| 763/84   | 18700        | 35100        | 5                 | 7020                      | 262                     | 6758    |
|  | BACKGROUND   | 1310         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6758    | 36.1       | 2.77              | 36.1%              | 2.77                      |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm2 PROBE |        |                             |                         |        |                             |
|--|--------|-----------------------------|-------------------------|--------|-----------------------------|
| ELAPSED TIME (in hours)                  | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
| INITIAL                                  | 7000   | -                           | 3 HOURS                 | 7060   | 100.9%                      |
| 1 HOUR                                   | 7100   | 98.6%                       | 3.5 HOURS               | 7090   | 101.3%                      |
| 1.5 HOURS                                | 7160   | 102.3%                      | 4 HOURS                 | 7130   | 101.9%                      |
| 2 HOURS                                  | 7220   | 103.1%                      | 4.5 HOURS               | 7100   | 98.6%                       |
| 2.5 HOURS                                | 7200   | 102.9%                      | 5 HOURS                 | 7130   | 101.9%                      |

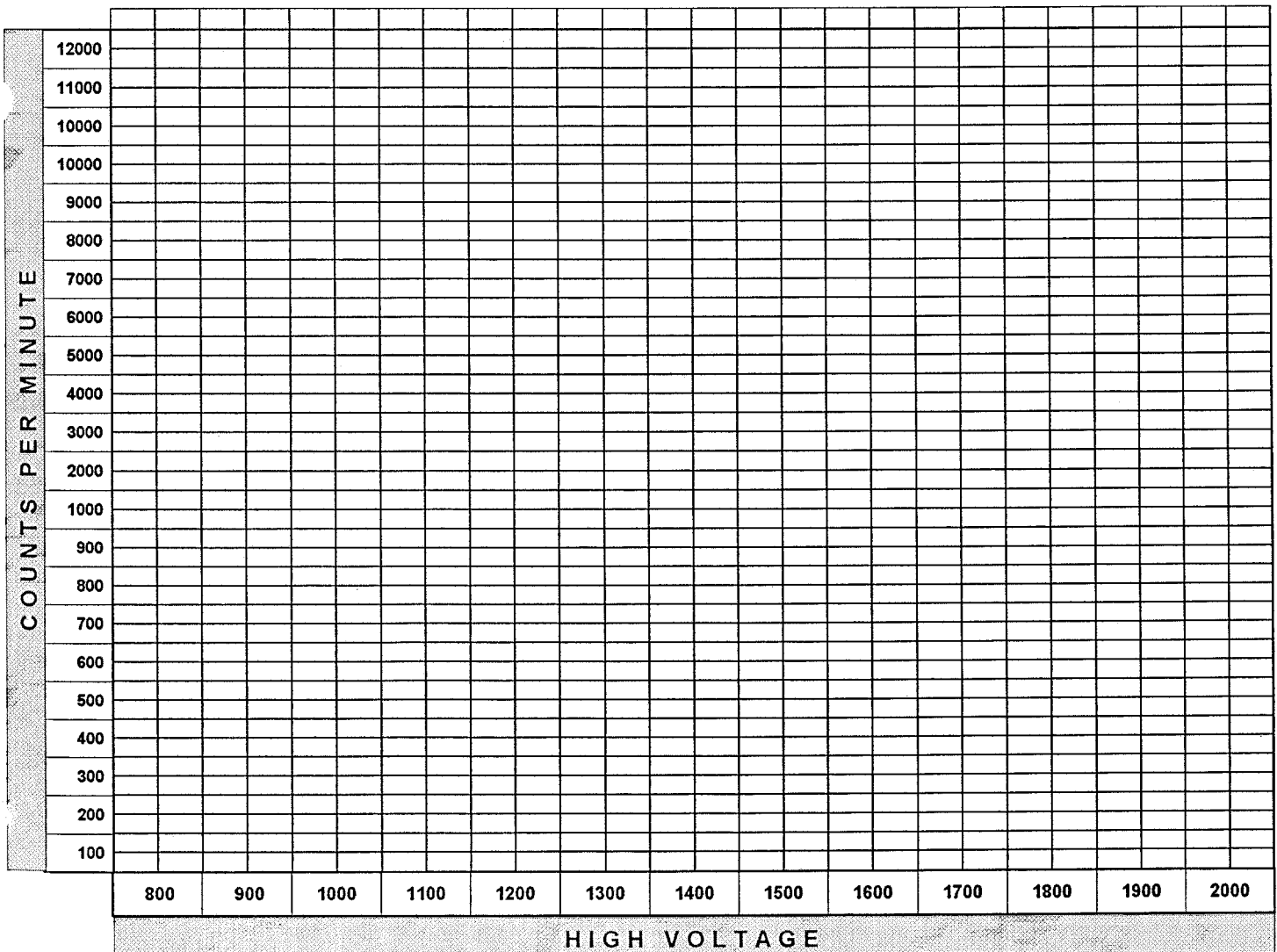
|                |             |
|----------------|-------------|
| CALIBRATED BY: | Larry Smith |
| SIGNATURE:     |             |

|       |         |
|-------|---------|
| DATE: | 6/10/97 |
|-------|---------|

|           |                               |
|-----------|-------------------------------|
| COMMENTS: | Calibrated with HP-100A Probe |
|-----------|-------------------------------|

|               |      |
|---------------|------|
| ALPHA / BETA: | Beta |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -----  | 1250         | 21     | 1650         | 7070   |
| 900          | -----  | 1300         | 310    | 1700         | 7150   |
| 950          | -----  | 1350         | 1140   | 1750         | 7360   |
| 1000         | -----  | 1400         | 2390   | 1800         | 7420   |
| 1050         | -----  | 1450         | 3630   | 1850         | 8280   |
| 1100         | -----  | 1500         | 4710   | 1900         | 11800  |
| 1150         | -----  | 1550         | 5870   | 1950         | -----  |
| 1200         | 8      | 1600         | 6730   | 2000         | -----  |



|            |      |                  |    |       |          |
|------------|------|------------------|----|-------|----------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 11/12/96 |
|------------|------|------------------|----|-------|----------|

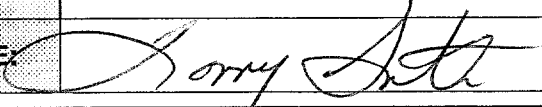
|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |                 |                 |                      |                              |                            |         |
|--|-----------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| SOURCE #   | ACTIVITY<br>dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
| 764/84   | 145,994         | 284,000         | 5                    | 56,800                       | 314                        | 56,486  |
|  |                 |                 |                      |                              |                            |         |
|  | BACKGROUND      | 1570            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 56,486  | 38.7%      | 2.58                 | 38.7%              | 2.58                         |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1700 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm2 PROBE |        |                                |                            |        |                                |
|--|--------|--------------------------------|----------------------------|--------|--------------------------------|
| ELAPSED TIME<br>(in hours)               | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
| INITIAL                                  | 57300  | -                              | 3 HOURS                    | 56600  | 98.8%                          |
| 1 HOUR                                   | 57100  | 99.7%                          | 3.5 HOURS                  | 56800  | 99.1%                          |
| 1.5 HOURS                                | 56800  | 99.1%                          | 4 HOURS                    | 57000  | 99.5%                          |
| 2 HOURS                                  | 56900  | 99.3%                          | 4.5 HOURS                  | 57300  | 100%                           |
| 2.5 HOURS                                | 57000  | 99.5%                          | 5 HOURS                    | 57200  | 99.8%                          |

|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

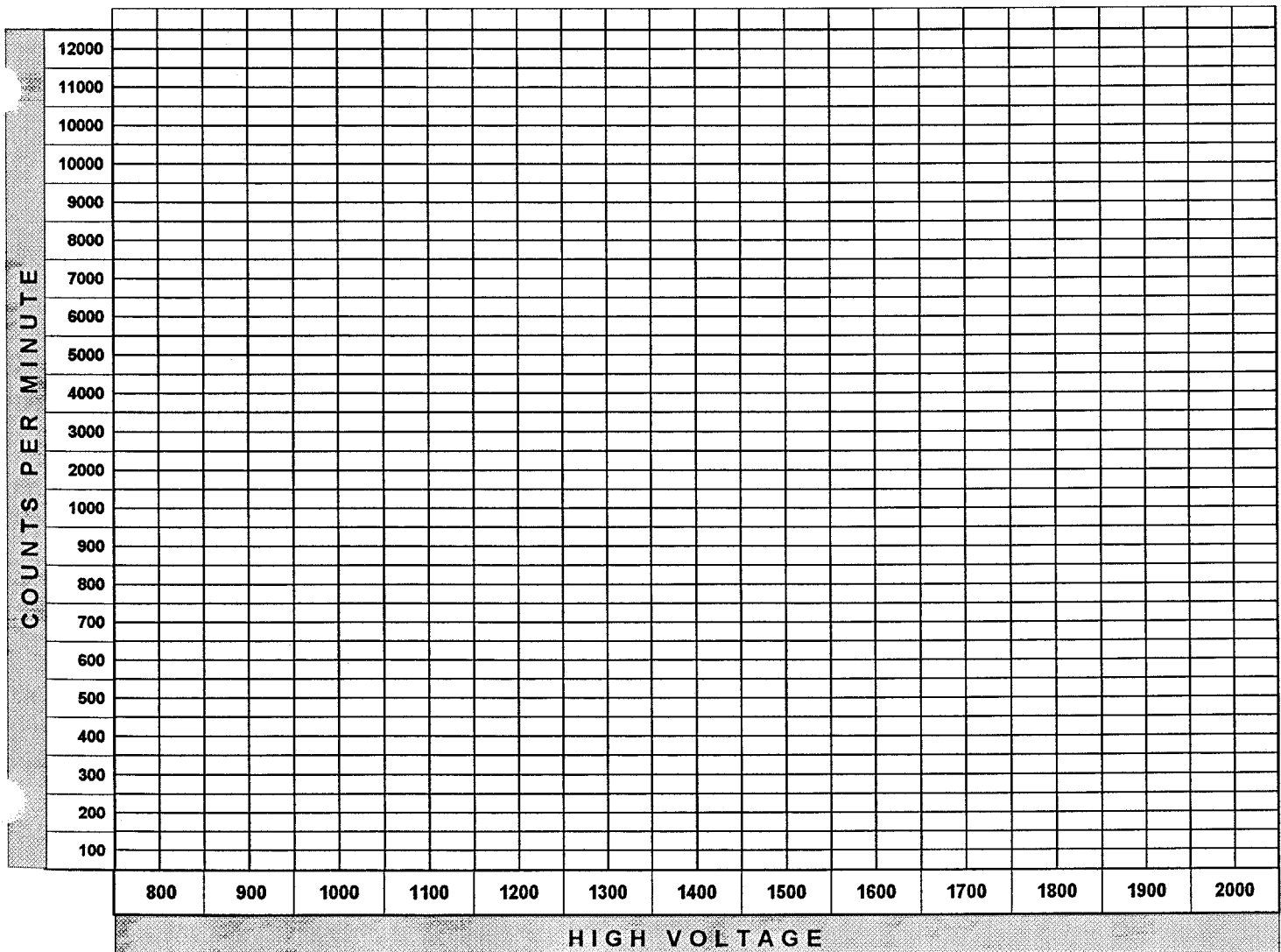
|       |          |
|-------|----------|
| DATE: | 11/12/96 |
|-------|----------|

|           |  |
|-----------|--|
| COMMENTS: | Calibrated with Eberline HP-100A probe |
|-----------|--|



|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 197    | 1650         | 56700  |
| 900          | -      | 1300         | 3420   | 1700         | 57100  |
| 950          | -      | 1350         | 9380   | 1750         | 57300  |
| 1000         | -      | 1400         | 21000  | 1800         | 57400  |
| 1050         | -      | 1450         | 31600  | 1850         | 69200  |
| 1100         | -      | 1500         | 40900  | 1900         | -      |
| 1150         | 10     | 1550         | 49000  | 1950         | -      |
| 1200         | 18     | 1600         | 55700  | 2000         | -      |



|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 8/19/96 |
|------------|------|------------------|----|-------|---------|

|               |      |
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| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

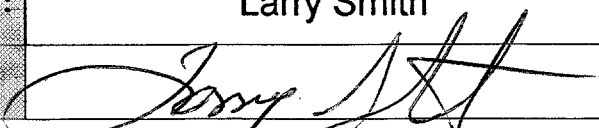
| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 764/84   | 145994       | 277000       | 5 min             | 55400                     | 318                     | 55082   |
|          | BACKGROUND   | 1590         | 5 min             |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 55082   | 37.7%      | 2.65              | 37.7%              | 2.65                      |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1700 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 7280   |                             | 3 HOURS                 | 7220   | 99.2%                       |
| 1 HOUR                  | 7140   | 98.1%                       | 3.5 HOURS               | 7200   | 98.9%                       |
| 1.5 HOURS               | 7120   | 97.8%                       | 4 HOURS                 | 7250   | 99.6%                       |
| 2 HOURS                 | 7100   | 97.5%                       | 4.5 HOURS               | 7210   | 99%                         |
| 2.5 HOURS               | 7090   | 97.4%                       | 5 HOURS                 | 7170   | 98.5%                       |

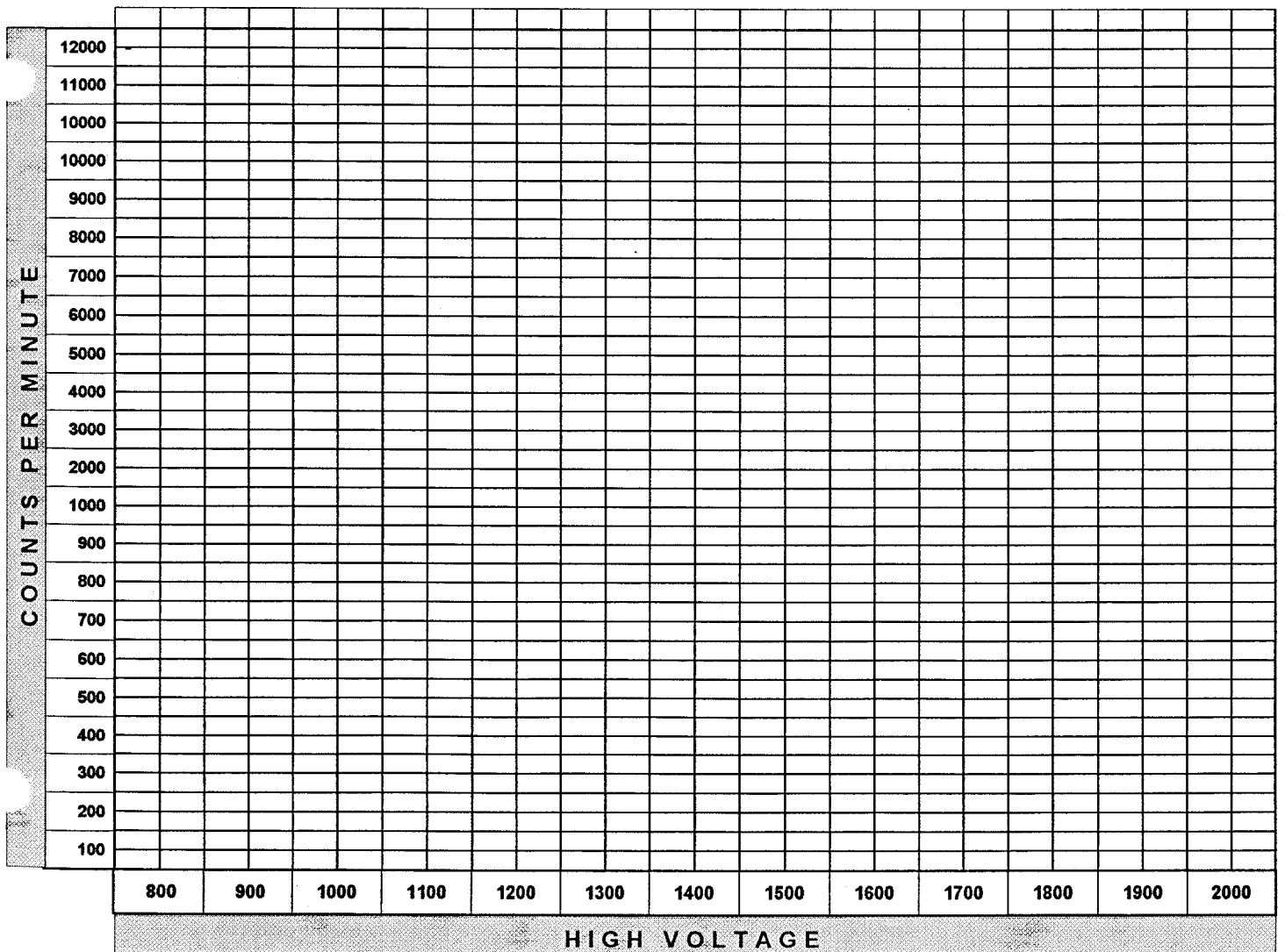
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |         |
|-------|---------|
| DATE: | 8/19/96 |
|-------|---------|

COMMENTS: Calibrated with Eberline HP-100A probe

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 21     | 1650         | 7160   |
| 900          | -      | 1300         | 38     | 1700         | 7300   |
| 950          | -      | 1350         | 305    | 1750         | 7260   |
| 1000         | -      | 1400         | 1540   | 1800         | 7710   |
| 1050         | -      | 1450         | 2770   | 1850         | 10000  |
| 1100         | -      | 1500         | 3970   | 1900         | -      |
| 1150         | -      | 1550         | 5300   | 1950         | -      |
| 1200         | 10     | 1600         | 6510   | 2000         | -      |



|            |      |                  |    |       |        |
|------------|------|------------------|----|-------|--------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 5/7/96 |
|------------|------|------------------|----|-------|--------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

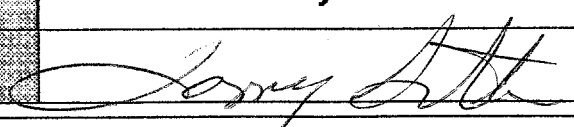
| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 764/84   | 145995       | 280000       | 5                 | 56000                     | 308                     | 55692   |
|          | BACKGROUND   | 1540         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 55692   | 38.1       | 2.62              | 38.1%              | 2.62                      |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1700 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 56400  | -                           | 3 HOURS                 | 56600  | 100.4%                      |
| 1 HOUR                  | 56100  | 99.5%                       | 3.5 HOURS               | 55900  | 99.1%                       |
| 1.5 HOURS               | 56400  | 100%                        | 4 HOURS                 | 56700  | 100.5%                      |
| 2 HOURS                 | 55900  | 99.1%                       | 4.5 HOURS               | 55900  | 99.1%                       |
| 2.5 HOURS               | 56100  | 99.5%                       | 5 HOURS                 | 56300  | 99.8%                       |

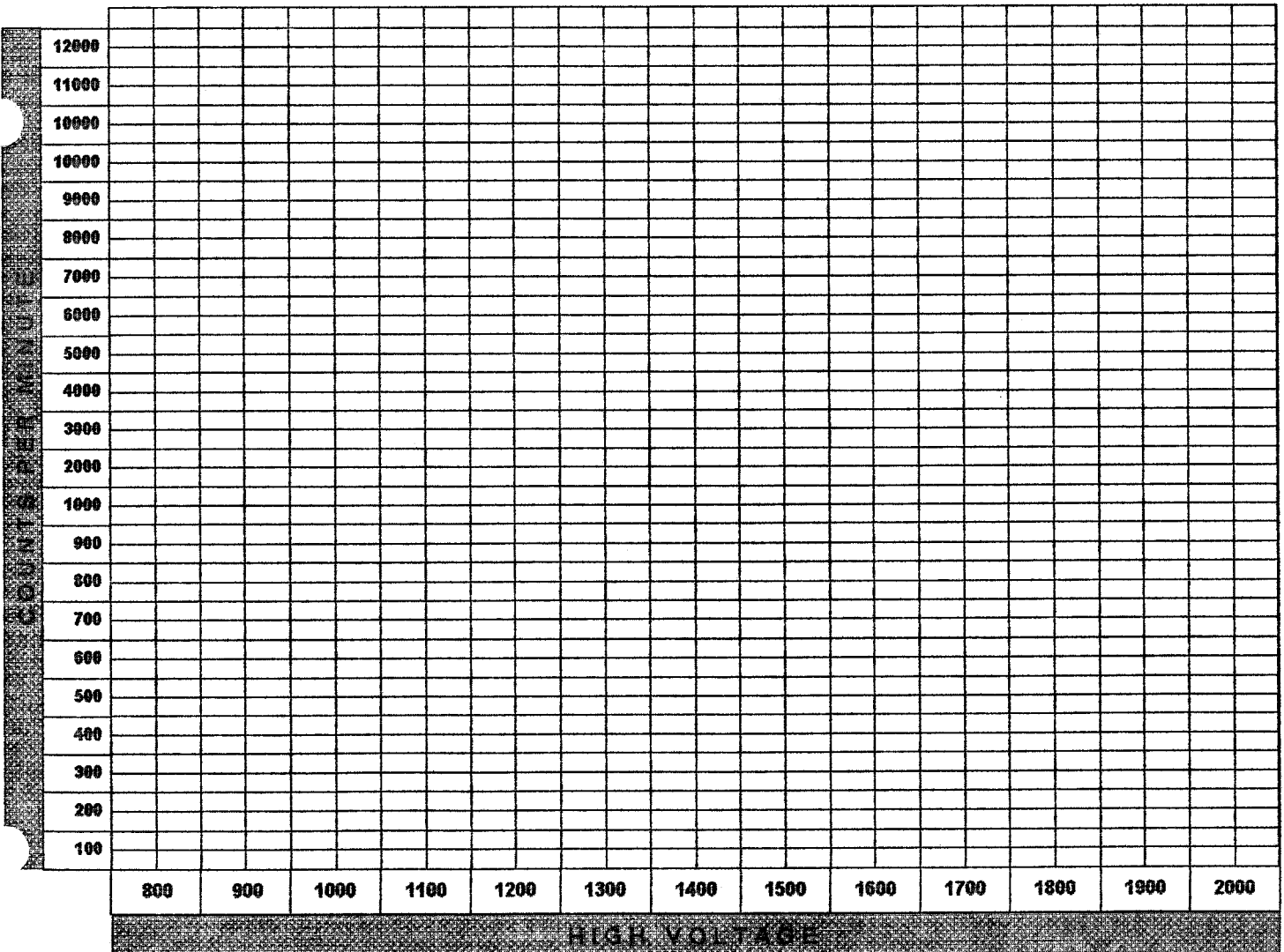
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |        |
|-------|--------|
| DATE: | 5/7/96 |
|-------|--------|

COMMENTS: Calibrated with Eberline HP-100A Probe

ALPHA / BETA      BETA

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 9      | 1650         | 2490   |
| 900          | -      | 1300         | 36     | 1700         | 2670   |
| 950          | -      | 1350         | 276    | 1750         | 2690   |
| 1000         | -      | 1400         | 592    | 1800         | 2900   |
| 1050         | -      | 1450         | 954    | 1850         | 3750   |
| 1100         | -      | 1500         | 1420   | 1900         | -      |
| 1150         | -      | 1550         | 1870   | 1950         | -      |
| 1200         | 4      | 1600         | 2290   | 2000         | -      |



|            |      |                  |    |       |          |
|------------|------|------------------|----|-------|----------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 11/13/95 |
|------------|------|------------------|----|-------|----------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

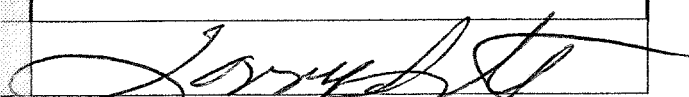
| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 763/84   | 18700        | 35800        | 5                 | 7160                      | 318                     | 6842    |
|          | BACKGROUND   | 1590         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6842    | 36.6%      | 2.7               | 36.6%              | 2.7                       |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 7030   |                             | 3 HOURS                 | 6970   | 99.1%                       |
| 1 HOUR                  | 7010   | 99.7%                       | 3.5 HOURS               | 7000   | 99.6 <sup>^</sup>           |
| 1.5 HOURS               | 7050   | 100.3%                      | 4 HOURS                 | 6940   | 98.7%                       |
| 2 HOURS                 | 6900   | 98.2%                       | 4.5 HOURS               | 6770   | 96.3%                       |
| 2.5 HOURS               | 6960   | 99%                         | 5 HOURS                 | 6970   | 99.1%                       |

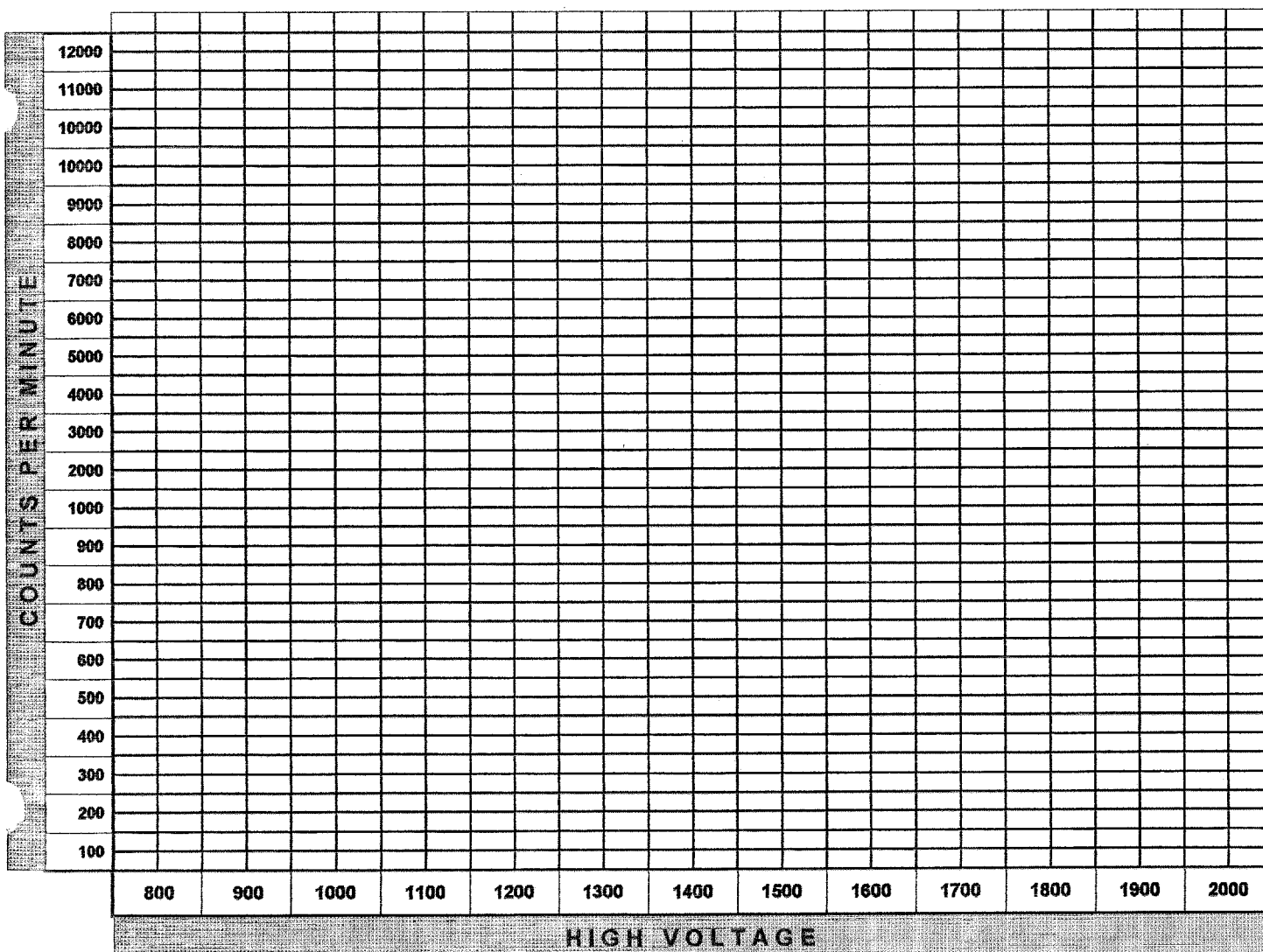
|                |  |
|----------------|--|
| CALIBRATED BY: | Larry Smith  |
| SIGNATURE:     |  |

|       |          |
|-------|----------|
| DATE: | 11/13/95 |
|-------|----------|

|           |  |
|-----------|--|
| COMMENTS: | Calibrated with Eberline HP-100A probe |
|-----------|--|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | ---    | 1250         | 34     | 1650         | 6900   |
| 900          | ---    | 1300         | 365    | 1700         | 7160   |
| 950          | ---    | 1350         | 1480   | 1750         | 7310   |
| 1000         | ---    | 1400         | 2440   | 1800         | 7490   |
| 1050         | ---    | 1450         | 3720   | 1850         | 9410   |
| 1100         | ---    | 1500         | 4960   | 1900         | ---    |
| 1150         | ---    | 1550         | 6130   | 1950         | ---    |
| 1200         | 12     | 1600         | 6860   | 2000         | ---    |





**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION  | INSTRUMENT INFORMATION                          |
|---|---|
| Customer Name: <u>Westinghouse</u>                                    | Instrument Manufacturer <u>Eberline</u>         |
| Customer Address: <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model <u>ESP-2</u> Serial Number <u>1593 #2</u> |
| Customer P.O.# <u>MB-14027-S</u>                                      | External Probe(s) <u>Serial #</u>               |
| Work Order # <u>I-95-10-209</u>                                       | Calibration Method <u>Pulser s/n 101500</u>     |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |               | Comment                           |
|------------------|----------------------------|---------------------|---------------|-----------------------------------|
|                  |                            | Before Calib.       | After Calib.  |                                   |
| 1 RATEMETER      | 200 CPM                    |                     | 2.00 + 02 CPM | All Calibrations Btn. + & - 10%   |
| 2                | 800                        |                     | 8.00 + 02     | Battery: OK                       |
| 3                |                            |                     |               |                                   |
| 4                | 2K                         |                     | 2.00 + 03     | Reset: OK                         |
| 5                | 8K                         |                     | 8.00 + 03     |                                   |
| 6                |                            |                     |               |                                   |
| 7                | 20K                        |                     | 2.00 + 04     | Light: OK                         |
| 8                | 80K                        |                     | 8.00 + 04     |                                   |
| 9                |                            |                     |               | Speaker: OK                       |
| 10               | 200K                       |                     | 2.00 + 05     |                                   |
| 11               | 800K                       |                     | 8.01 + 05     | Input Sensitivity $\approx$ 1mV   |
| 12               |                            |                     |               |                                   |
| 13 SCALER        | 2M                         |                     | 2.01 + 06     | DT = 1.75 - 07                    |
| 14 INTEGRATING   |                            |                     |               | CC = 1.00 + 00                    |
| 15 1 MIN COUNTS  | 200                        |                     | 1.99 + 02     | High Voltage Check (900-1750): OK |
| 16               |                            |                     |               |                                   |
| 17               | 2K                         |                     | 2.00 + 03     | Electronic Cal Only               |
| 18               |                            |                     |               |                                   |
| 19               | 20K                        |                     | 2.00 + 04     |                                   |
| 20               |                            |                     |               |                                   |
| 21               | 200K                       |                     | 2.00 + 05     |                                   |
| 22               |                            |                     |               |                                   |
| 23               | 2M                         |                     | 2.01 + 06     |                                   |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u> | I certify that the above information is correct: |
| Calibration Date: <u>10-24-95</u> (Signed)   | <u>[Signature]</u> 10-24-95                      |
| Next Calibration Due: <u>01-24-96</u>        | Administrative Coordinator Date                  |



|            |      |                  |    |       |        |
|------------|------|------------------|----|-------|--------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 9/5/95 |
|------------|------|------------------|----|-------|--------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 763/84   | 18699        | 35300        | 5                 | 7060                      | 276                     | 6784    |
|          |              |              |                   |                           |                         |         |
|          | BACKGROUND   | 1380         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6784    | 36.2%      | 2.8               | 36.2%              | 2.8                       |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm<sup>2</sup> PROBE

| ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 6950   | ---                         | 3 HOURS                 | 6920   | 99.6%                       |
| 1 HOUR                  | 7150   | 102.9%                      | 3.5 HOURS               | 7040   | 101.3%                      |
| 1.5 HOURS               | 7120   | 102.4%                      | 4 HOURS                 | 7160   | 103%                        |
| 2 HOURS                 | 7030   | 101.1%                      | 4.5 HOURS               | 7040   | 101.3%                      |
| 2.5 HOURS               | 7010   | 100.8%                      | 5 HOURS                 | 6860   | 98.7%                       |

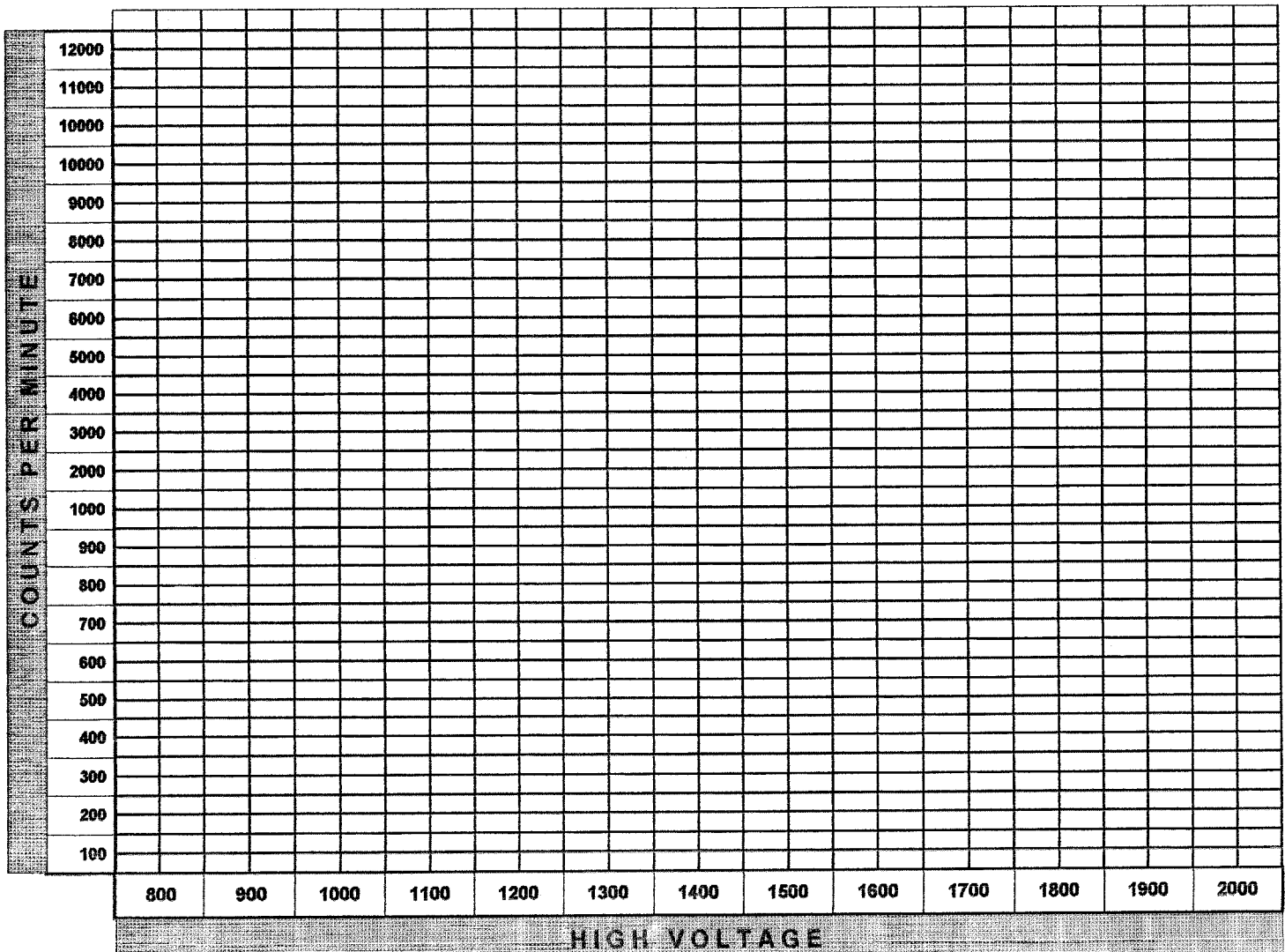
|                |                       |
|----------------|-----------------------|
| CALIBRATED BY: | Carmen Vergari        |
| SIGNATURE:     | <i>Carmen Vergari</i> |

|       |        |
|-------|--------|
| DATE: | 9/5/95 |
|-------|--------|

|           |  |
|-----------|--|
| COMMENTS: | Calibrated with Eberline HP-100A probe |
|-----------|--|

ALPHA / BETA: BETA

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | ---    | 1250         | 51     | 1650         | 7010   |
| 900          | ---    | 1300         | 532    | 1700         | 7300   |
| 950          | ---    | 1350         | 1250   | 1750         | 7210   |
| 1000         | ---    | 1400         | 2810   | 1800         | 7550   |
| 1050         | ---    | 1450         | 4000   | 1850         | 9540   |
| 1100         | ---    | 1500         | 5210   | 1900         | ---    |
| 1150         | ---    | 1550         | 6250   | 1950         | ---    |
| 1200         | 5      | 1600         | 6990   | 2000         | ---    |



|            |      |                  |    |       |        |
|------------|------|------------------|----|-------|--------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 6/5/95 |
|------------|------|------------------|----|-------|--------|

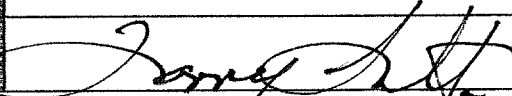
|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |              |              |                  |                           |                         |         |
|--|--------------|--------------|------------------|---------------------------|-------------------------|---------|
| SOURCE #   | ACTIVITY PPM | TOTAL COUNTS | DME (In minutes) | GROSS CPM (Total / 5 min) | BKG CPM (Total / 5 min) | NET CPM |
| 763/84   | 18699        | 35100        | 5                | 7020                      | 226                     | 6794    |
|  |              |              |                  |                           |                         |         |
|  | BACKGROUND   | 1130         | 5                |                           |                         |         |

| NET CPM | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6794    | 36.3%      | 2.8               | 36.3%              | 2.8                       |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm2 PROBE |        |                             |                         |        |                             |
|--|--------|-----------------------------|-------------------------|--------|-----------------------------|
| ELAPSED TIME (In Hours)                  | COUNTS | PERCENT (of original count) | ELAPSED TIME (In Hours) | COUNTS | PERCENT (of original count) |
| INITIAL                                  | 6880   | ---                         | 3 HOURS                 | 6820   | 99.1%                       |
| 1 HOUR                                   | 6890   | 100.1%                      | 3.5 HOURS               | 6740   | 98%                         |
| 1.5 HOURS                                | 6990   | 101.6%                      | 4 HOURS                 | 6760   | 98.3%                       |
| 2 HOURS                                  | 7020   | 102%                        | 4.5 HOURS               | 6890   | 100.1%                      |
| 2.5 HOURS                                | 6840   | 99.4%                       | 5 HOURS                 | 6840   | 99.4%                       |

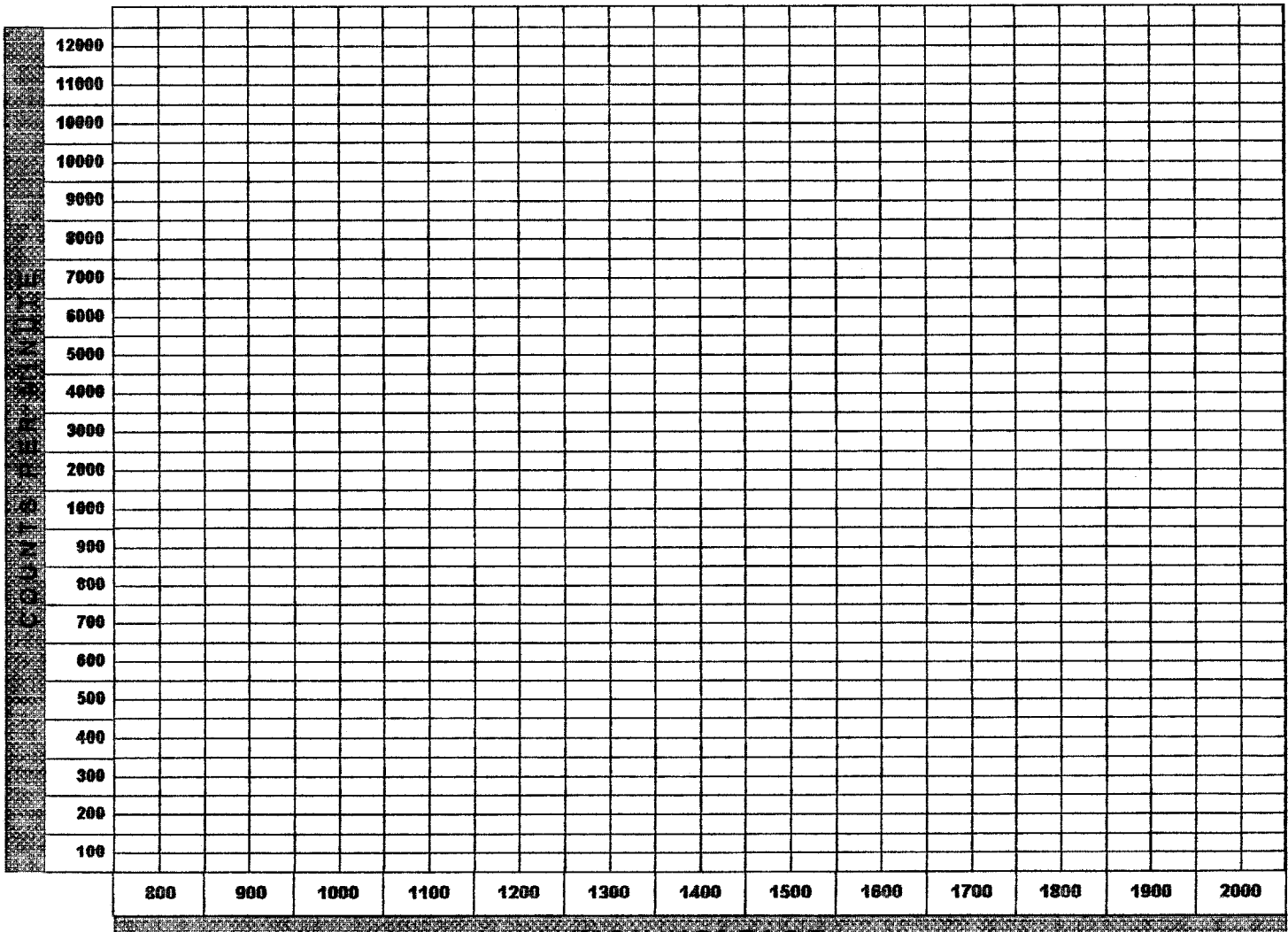
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |        |
|-------|--------|
| DATE: | 6/5/95 |
|-------|--------|

|           |  |
|-----------|--|
| COMMENTS: | Calibrated with Eberline HP-100A probe |
|-----------|--|

ALPHA / BETA BETA

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | ---    | 1250         | 5      | 1650         | 6770   |
| 900          | ---    | 1300         | 57     | 1700         | 7050   |
| 950          | ---    | 1350         | 668    | 1750         | 7280   |
| 1000         | ---    | 1400         | 1590   | 1800         | 7930   |
| 1050         | ---    | 1450         | 2790   | 1850         | 10200  |
| 1100         | ---    | 1500         | 3970   | 1900         | ---    |
| 1150         | ---    | 1550         | 5410   | 1950         | ---    |
| 1200         | 4      | 1600         | 6780   | 2000         | ---    |



|            |      |                  |    |       |        |
|------------|------|------------------|----|-------|--------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 3-3-95 |
|------------|------|------------------|----|-------|--------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |              |              |                   |                           |                         |         |
|--|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| SOURCE #   | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG dpm (Total / # min) | NET cpm |
| 763/84   | 18700        | 34300        | 5                 | 6860                      | 248                     | 6612    |
|  |              |              |                   |                           |                         |         |
|  | BACKGROUND   | 1240         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6612    | 35.4%      | 2.82              | 35.4%              | 2.82                      |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm2 PROBE |        |                             |                         |        |                             |
|--|--------|-----------------------------|-------------------------|--------|-----------------------------|
| ELAPSED TIME (in hours)                  | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
| INITIAL                                  | 6680   |                             | 3 HOURS                 | 6830   | 102.2%                      |
| 1 HOUR                                   | 6730   | 100.7%                      | 3.5 HOURS               | 6870   | 102.8%                      |
| 1.5 HOURS                                | 6740   | 100.8%                      | 4 HOURS                 | 6760   | 101.2%                      |
| 2 HOURS                                  | 7030   | 105.2%                      | 4.5 HOURS               | 6870   | 102.8%                      |
| 2.5 HOURS                                | 6800   | 101.7%                      | 5 HOURS                 | 6930   | 103.7%                      |

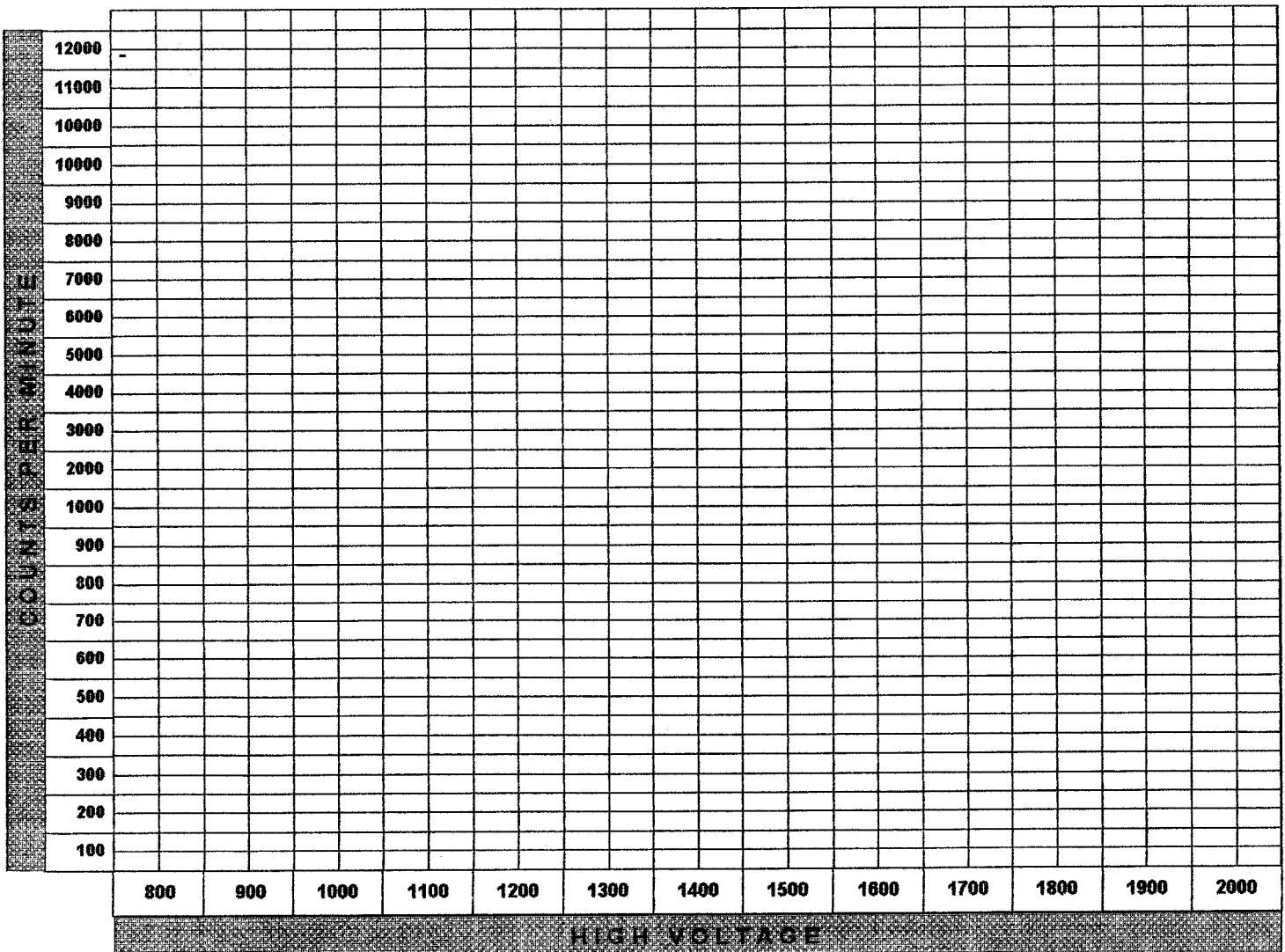
|                |             |
|----------------|-------------|
| CALIBRATED BY: | Larry Smith |
| SIGNATURE:     |             |

|       |        |
|-------|--------|
| DATE: | 3-3-95 |
|-------|--------|

|           |   |
|-----------|---|
| COMMENTS: | Calibrated with Eberline HP-100A probe. |
|-----------|---|

ALPHA / BETA: BETA

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 6      | 1650         | 6970   |
| 900          | -      | 1300         | 27     | 1700         | 7020   |
| 950          | -      | 1350         | 484    | 1750         | 7040   |
| 1000         | -      | 1400         | 1300   | 1800         | 7490   |
| 1050         | -      | 1450         | 2310   | 1850         | 9060   |
| 1100         | -      | 1500         | 3940   | 1900         | -      |
| 1150         | -      | 1550         | 4970   | 1950         | -      |
| 1200         | 9      | 1600         | 6250   | 2000         | -      |



|            |      |                  |    |       |        |
|------------|------|------------------|----|-------|--------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 1/4/95 |
|------------|------|------------------|----|-------|--------|

|               |      |
|---------------|------|
| ALPHA / BETA: | Beta |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)


| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 763/84   | 18699        | 36300        | 5                 | 7260                      | 242                     | 7013    |
|          |              |              |                   |                           |                         |         |
|          | BACKGROUND   | 1210         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 7013    | 37.5       | 2.67              | 37.5               | 2.67                      |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm<sup>2</sup> PROBE

| ELASPED TIME (in hours) | COUNTS | PERCENT (of original count) | ELASPED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 7230   | 100%                        | 3 HOURS                 | 6900   | 95.4%                       |
| 1 HOUR                  | 7210   | 99.7%                       | 3.5 HOURS               | 6890   | 95.3%                       |
| 1.5 HOURS               | 7190   | 99.4%                       | 4 HOURS                 | 7070   | 97.8%                       |
| 2 HOURS                 | 7130   | 98.6%                       | 4.5 HOURS               | 6970   | 96.4%                       |
| 2.5 HOURS               | 7010   | 97%                         | 5 HOURS                 | 6900   | 95.4%                       |

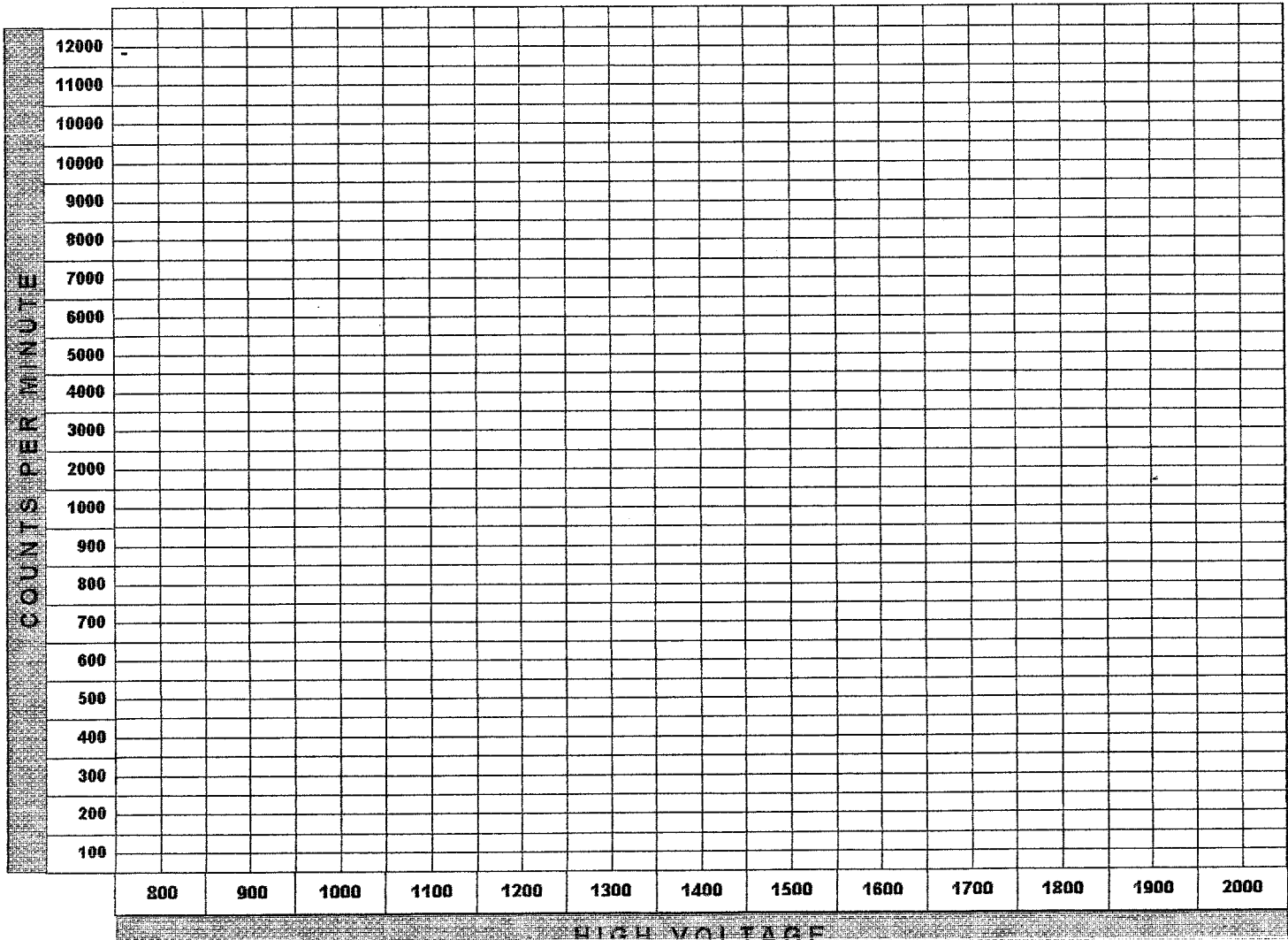
|                |   |
|----------------|---|
| CALIBRATED BY: | John Shoemaker  |
| SIGNATURE:     |  |

|       |        |
|-------|--------|
| DATE: | 1/4/95 |
|-------|--------|

|           |   |
|-----------|---|
| COMMENTS: | Calibrated with <del>Ludlum 44-88 Probe</del> <i>PHYSICAL HP 100x PROBE</i> |
|-----------|---|

|               |      |
|---------------|------|
| ALPHA / BETA: | Beta |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          |        | 1250         | 14     | 1650         | 7200   |
| 900          |        | 1300         | 246    | 1700         | 7340   |
| 950          |        | 1350         | 890    | 1750         | 7380   |
| 1000         |        | 1400         | 2200   | 1800         | 7580   |
| 1050         |        | 1450         | 3280   | 1850         | 8500   |
| 1100         |        | 1500         | 4620   | 1900         |        |
| 1150         |        | 1550         | 5890   | 1950         |        |
| 1200         | 8      | 1600         | 6900   | 2000         |        |





|           |      |                  |    |       |         |
|-----------|------|------------------|----|-------|---------|
| SP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 10/5/94 |
|-----------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)


| SOURCE # | ACTIVITY<br>dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-----------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 763/84   | 18699           | 33800           | 5                    | 6760                         | 222                        | 6538    |
|          | BACKGROUND      | 1110            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6538    | 34.96      | 2.86                 | 34.96              | 2.86                         |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm<sup>2</sup> PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6940   |                                | 3 HOURS                    | 6760   | 97.4%                          |
| 1 HOUR                     | 6680   | 96.2%                          | 3.5 HOURS                  | 6860   | 98.3%                          |
| 1.5 HOURS                  | 6750   | 97.3%                          | 4 HOURS                    | 6820   | 98.3%                          |
| 2 HOURS                    | 6830   | 98.1%                          | 4.5 HOURS                  | 6730   | 97%                            |
| 2.5 HOURS                  | 6850   | 98.7%                          | 5 HOURS                    | 6790   | 97.3%                          |

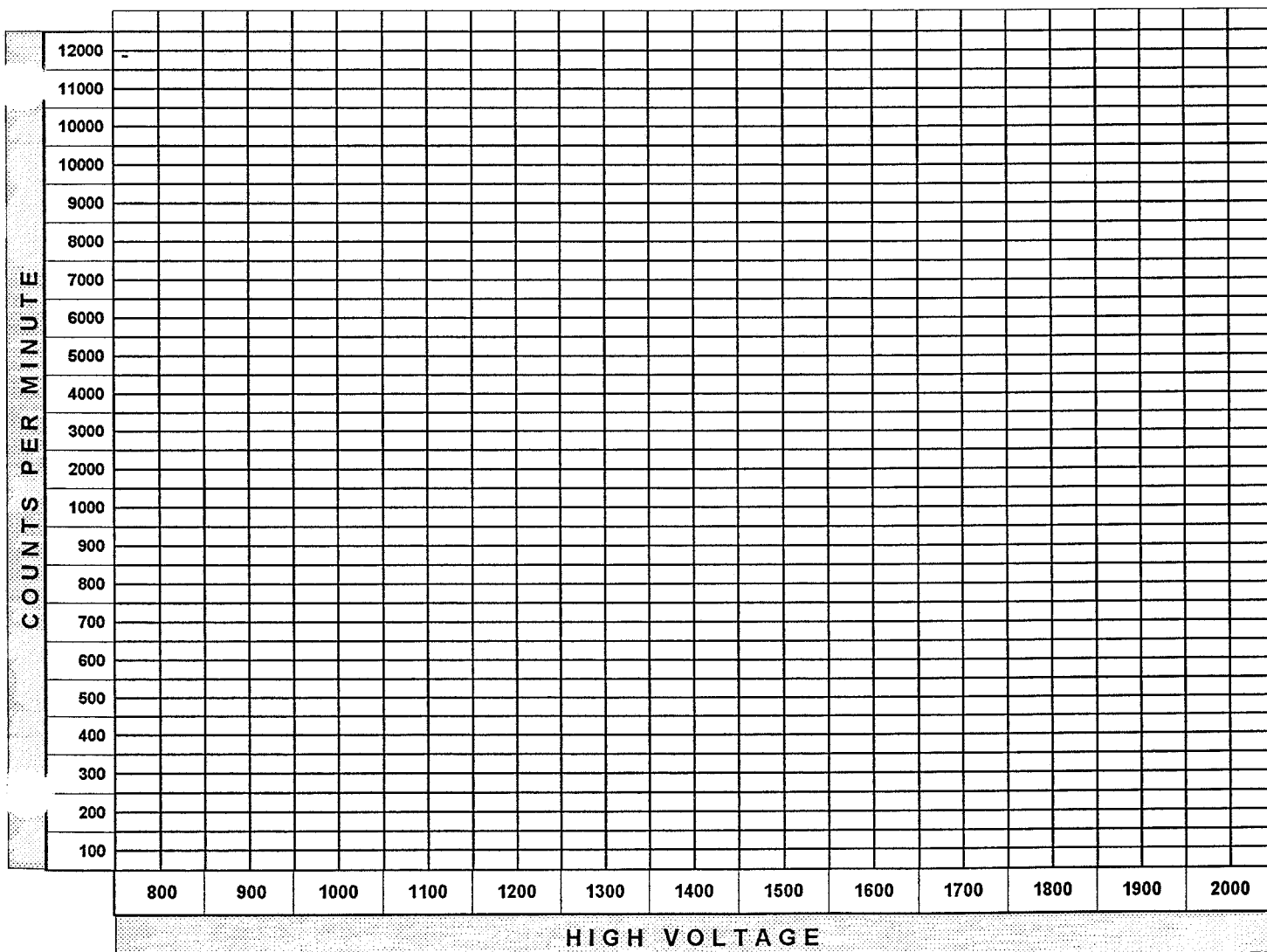
|                |   |
|----------------|---|
| CALIBRATED BY: | John Shoemaker  |
| SIGNATURE:     |  |

|       |         |
|-------|---------|
| DATE: | 10/5/94 |
|-------|---------|

|          |  |
|----------|--|
| REMARKS: | Calibrated with Eberline HP-100A probe |
|----------|--|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 16     | 1650         | 6810   |
| 900          | -      | 1300         | 286    | 1700         | 6890   |
| 950          | -      | 1350         | 991    | 1750         | 6960   |
| 1000         | -      | 1400         | 2370   | 1800         | 7070   |
| 1050         | -      | 1450         | 3360   | 1850         | 8530   |
| 1100         | -      | 1500         | 4470   | 1900         | -      |
| 1150         | -      | 1550         | 5600   | 1950         | -      |
| 1200         | 9      | 1600         | 6520   | 2000         | -      |



|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 7-11-94 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

| SOURCE # | ACTIVITY<br>dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-----------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 763/84   | 18699           | 33800           | 5                    | 6760                         | 262                        | 6498    |
|          |                 |                 |                      |                              |                            |         |
|          | BACKGROUND      | 1160            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6498    | 34.8       | 2.87                 | 34.8               | 2.87                         |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6850   | 100%                           | 3 HOURS                    | 6710   | 98%                            |
| 1 HOUR                     | 6770   | 98.8%                          | 3.5 HOURS                  | 6690   | 97.7%                          |
| 1.5 HOURS                  | 6810   | 99.4%                          | 4 HOURS                    | 6720   | 98.1%                          |
| 2 HOURS                    | 6750   | 98.5%                          | 4.5 HOURS                  | 6650   | 97%                            |
| 2.5 HOURS                  | 6800   | 99.3%                          | 5 HOURS                    | 6600   | 96.3%                          |

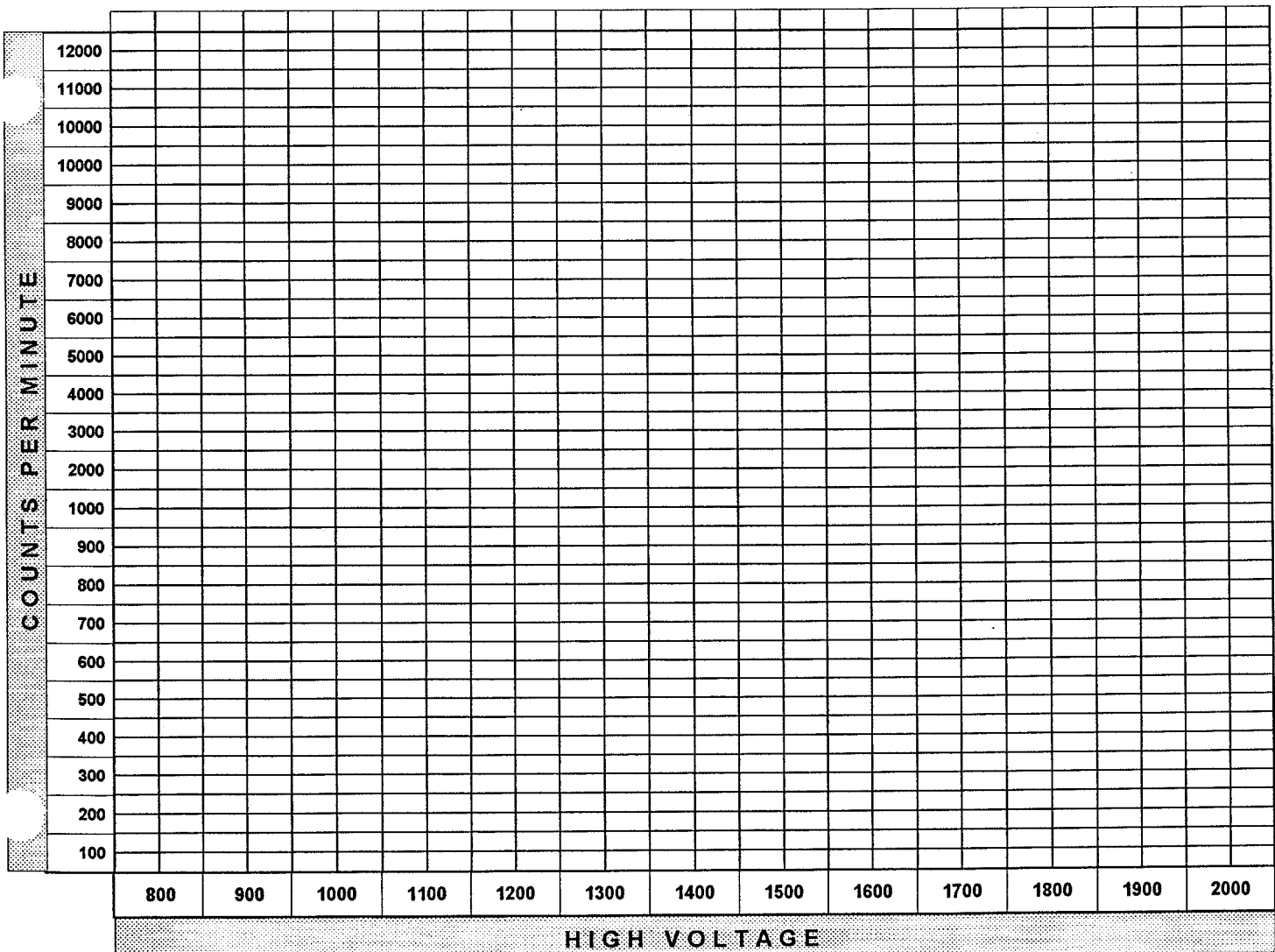
|                |             |
|----------------|-------------|
| CALIBRATED BY: | Larry Smith |
| SIGNATURE:     |             |

|       |         |
|-------|---------|
| DATE: | 7-11-94 |
|-------|---------|

|           |   |
|-----------|---|
| COMMENTS: | Calibrated with Eberline HP-100A probe. |
|-----------|---|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 7      | 1650         | 6830   |
| 900          | -      | 1300         | 199    | 1700         | 6840   |
| 950          | -      | 1350         | 674    | 1750         | 7110   |
| 1000         | -      | 1400         | 2010   | 1800         | 6940   |
| 1050         | -      | 1450         | 3200   | 1850         | 7880   |
| 1100         | -      | 1500         | 4320   | 1900         | 11000  |
| 1150         | -      | 1550         | 5550   | 1950         | -      |
| 1200         | 6      | 1600         | 6410   | 2000         | -      |



|            |      |                  |    |       |        |
|------------|------|------------------|----|-------|--------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 4/4/94 |
|------------|------|------------------|----|-------|--------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

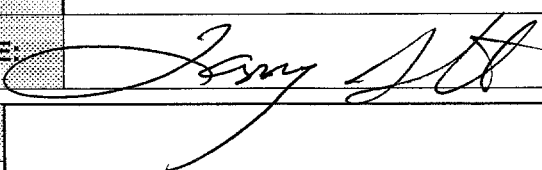
| SOURCE # | ACTIVITY<br>dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-----------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 763-84   | 18700           | 30800           | 5                    | 6160                         | 242                        | 5918    |
|          |                 |                 |                      |                              |                            |         |
|          | BACKGROUND      | 1210            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 5918    | 31.6%      | 3.16                 | 31.6%              | 3.16                         |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm<sup>2</sup> PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6250   | INITIAL                        | 3 HOURS                    | 6210   | 99.4                           |
| 1 HOUR                     | 6320   | 101.1                          | 3.5 HOURS                  | 6040   | 96.6                           |
| 1.5 HOURS                  | 6190   | 99                             | 4 HOURS                    |        |                                |
| 2 HOURS                    | 6300   | 100.8                          | 4.5 HOURS                  |        |                                |
| 2.5 HOURS                  | 6130   | 98.1                           | 5 HOURS                    |        |                                |

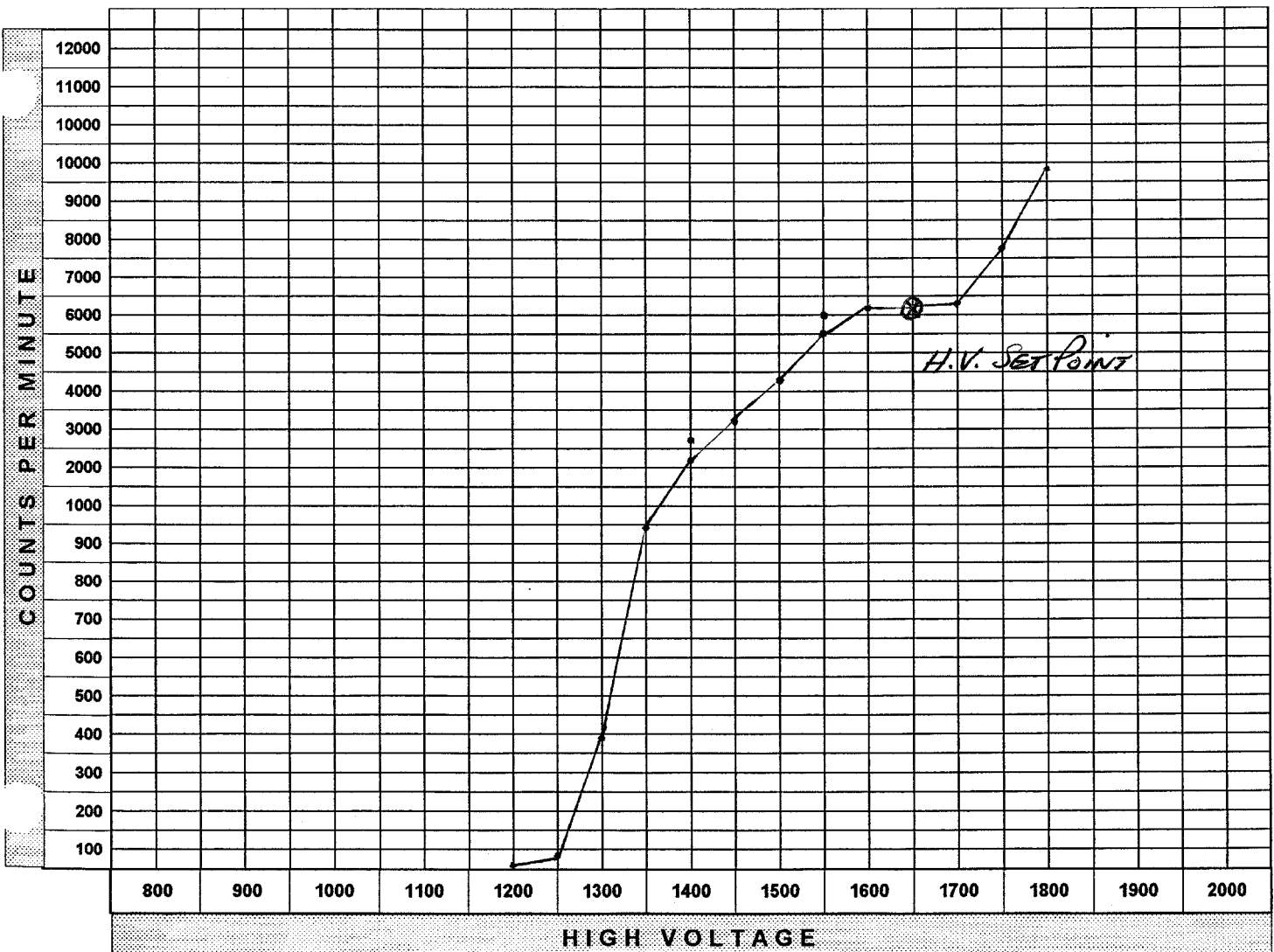
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |        |
|-------|--------|
| DATE: | 4/4/94 |
|-------|--------|

|           |  |
|-----------|--|
| COMMENTS: |  |
|-----------|--|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | ---    | 1250         | 32     | 1650         | 6100   |
| 900          | ---    | 1300         | 388    | 1700         | 6270   |
| 950          | ---    | 1350         | 946    | 1750         | 7750   |
| 1000         | ---    | 1400         | 2190   | 1800         | 9850   |
| 1050         | ---    | 1450         | 3130   | 1850         |        |
| 1100         | ---    | 1500         | 4380   | 1900         |        |
| 1150         | ---    | 1550         | 5500   | 1950         |        |
| 1200         | 6      | 1600         | 6130   | 2000         |        |



|            |      |                  |    |       |        |
|------------|------|------------------|----|-------|--------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 1-3-94 |
|------------|------|------------------|----|-------|--------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

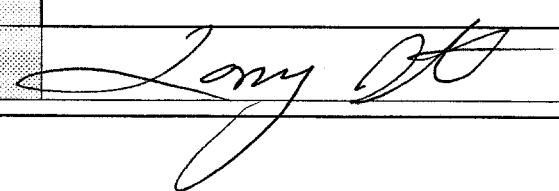
| SOURCE # | ACTIVITY<br>dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-----------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 763-84   | 18700           | 31200           | 5                    | 6240                         | 240                        | 6000    |
|          | BACKGROUND      | 1200            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6000    | 32%        | 3.1                  | 32%                | 3.1                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm<sup>2</sup> PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6230   | 100%                           | 3 HOURS                    | 6150   | 98.7%                          |
| 1 HOUR                     | 6120   | 98.2%                          | 3.5 HOURS                  | 6450   | 98.7%                          |
| 1.5 HOURS                  | 6240   | 100.2%                         | 4 HOURS                    | 6040   | 97%                            |
| 2 HOURS                    | 6280   | 100.8%                         | 4.5 HOURS                  | ---    | ---                            |
| 2.5 HOURS                  | 6160   | 98.9%                          | 5 HOURS                    | ---    | ---                            |

|                |   |
|----------------|---|
| CALIBRATED BY: | M. Shaffer / L. Smith   |
| SIGNATURE:     |  |

|       |        |
|-------|--------|
| DATE: | 1-3-94 |
|-------|--------|

|           |  |
|-----------|--|
| COMMENTS: |  |
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|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1593 | INSTRUMENT CODE: | 11 | DATE: | 10-4-93 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | Beta |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

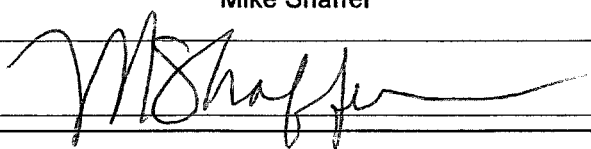
| SOURCE # | ACTIVITY<br>* dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 763/84   | 18699             | 31600           | 5                    | 6320                         | 248                        | 6072    |
| 764/84   | 145996            | 248000          | 5                    | 49600                        | 248                        | 49352   |
|          | BACKGROUND        | 1240            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6072    | 32.4       | 3.0                  | 33.1               | 2.95                         |
| 49352   | 33.8       | 2.9                  |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6390   | 100                            | 3 HOURS                    | 6100   | 95.4                           |
| 1 HOUR                     | 6210   | 97.1                           | 3.5 HOURS                  | 6240   | 97.6                           |
| 1.5 HOURS                  | 6120   | 95.7                           | 4 HOURS                    | 5970   | 93.4                           |
| 2 HOURS                    | 6280   | 98.2                           | 4.5 HOURS                  | 5850   | 91.5                           |
| 2.5 HOURS                  | 6030   | 94.3                           | 5 HOURS                    | 5800   | 90.7                           |

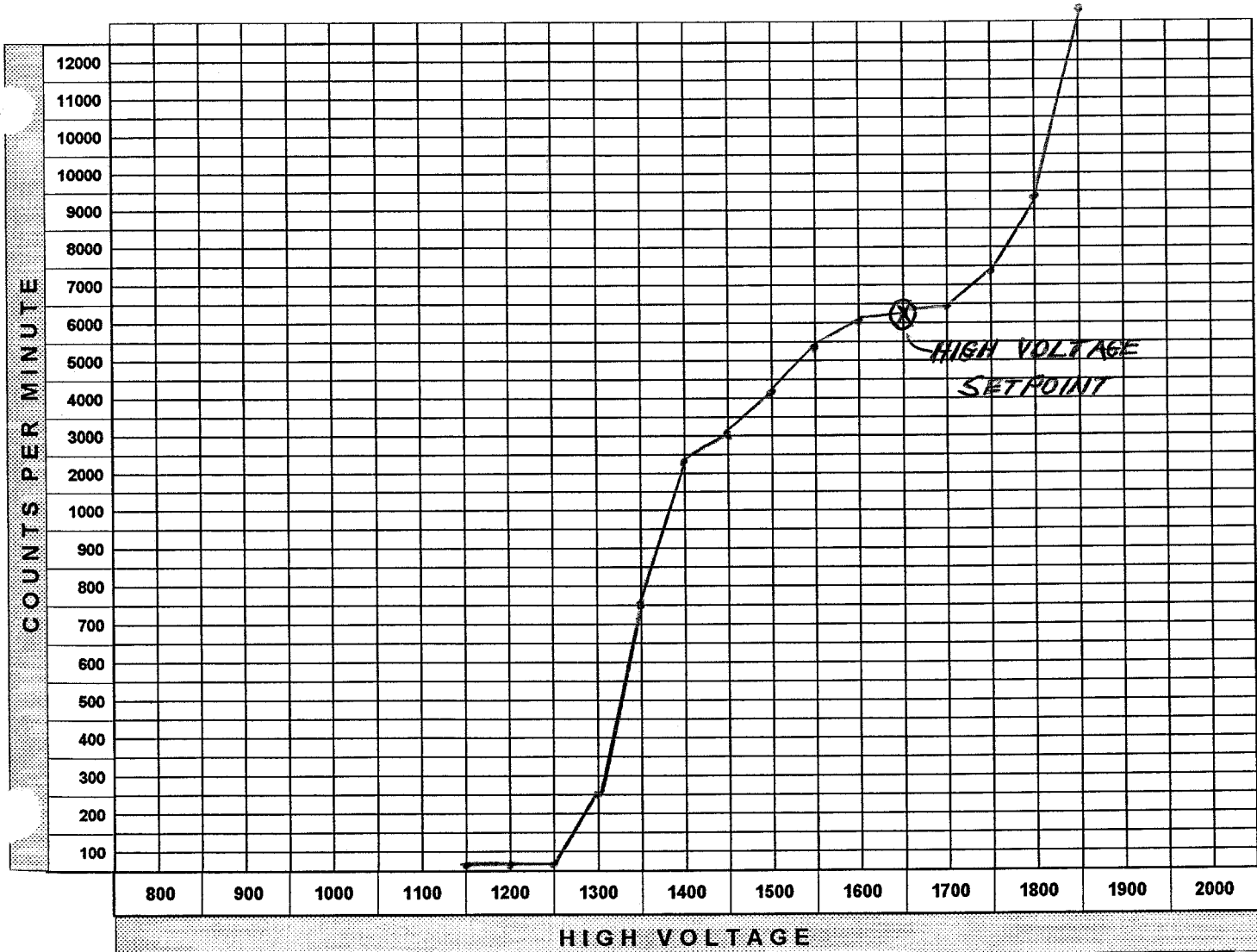
|                |   |
|----------------|---|
| CALIBRATED BY: | Mike Shaffer  |
| SIGNATURE:     |  |

|       |         |
|-------|---------|
| DATE: | 10-4-93 |
|-------|---------|

|           |  |
|-----------|--|
| COMMENTS: |  |
|-----------|--|

|               |      |
|---------------|------|
| ALPHA / BETA: | Beta |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          |        | 1250         | 15     | 1650         | 6140   |
| 900          |        | 1300         | 256    | 1700         | 6460   |
| 950          |        | 1350         | 782    | 1750         | 7410   |
| 1000         |        | 1400         | 2300   | 1800         | 9380   |
| 1050         |        | 1450         | 3000   | 1850         | 13300  |
| 1100         |        | 1500         | 4170   | 1900         |        |
| 1150         | 4      | 1550         | 5400   | 1950         |        |
| 1200         | 3      | 1600         | 6040   | 2000         |        |



ESP-2 S/N: 1593

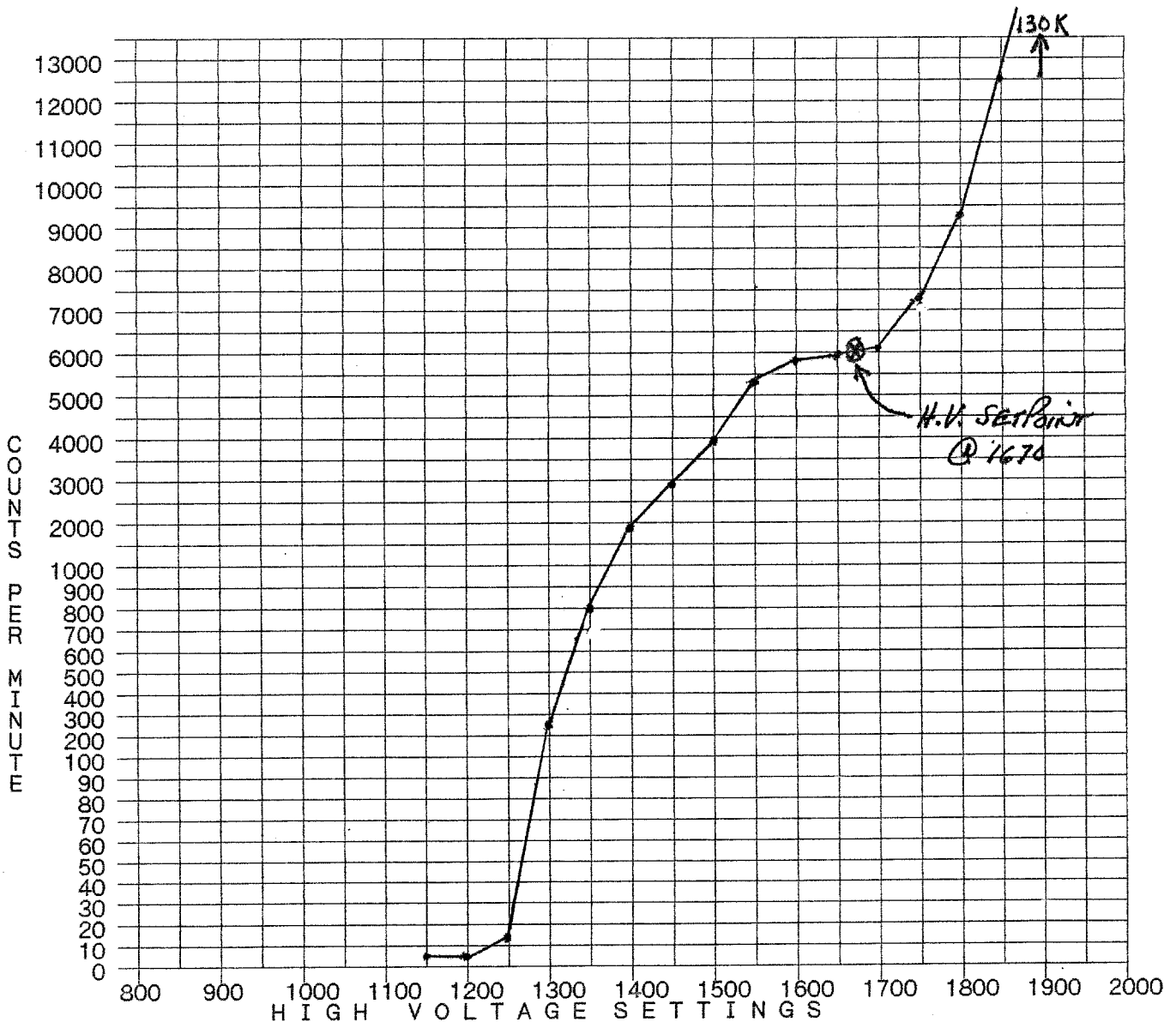
TAB #. ~~9~~ *Inst Code # 11*

DATE: 7/15/93

PLATEAU DATA

| ALPHA |     |      |     | BETA |      |      |        |
|-------|-----|------|-----|------|------|------|--------|
| HV    | CTS | HV   | CTS | HV   | CTS  | HV   | CTS    |
| 850   |     | 1250 |     | 1150 | 6    | 1550 | 5320   |
| 900   |     | 1300 |     | 1200 | 5    | 1600 | 5860   |
| 950   |     | 1350 |     | 1250 | 14   | 1650 | 5930   |
| 1000  | →   | 1400 |     | 1300 | 266  | 1700 | 6130   |
| 1050  |     | 1450 |     | 1350 | 792  | 1750 | 7310   |
| 1100  |     | 1500 |     | 1400 | 1910 | 1800 | 9320   |
| 1150  |     | 1550 |     | 1450 | 2950 | 1850 | 12500  |
| 1200  |     | 1600 |     | 1500 | 4030 | 1900 | 130000 |

PLATEAU PLOT



|                 |                |               |
|-----------------|----------------|---------------|
| ESP-2 S/N: 1593 | INST. CODE #11 | DATE: 7/15/93 |
|-----------------|----------------|---------------|

ALPHA EFFICIENCY DATA (Net cpm / dpm = Eff)(Coorection Factor = 1 / Eff)

| SOURCE # | ACTIVITY | TOTAL CTS | TIME        | GROSS CPM | BKG. CPM     | NET CPM |
|----------|----------|-----------|-------------|-----------|--------------|---------|
|          | dpm      |           | min         |           |              |         |
|          | dpm      |           | min         |           |              |         |
| NET CPM  | EFF      | C.F.      | AVERAGE EFF |           | AVERAGE C.F. |         |
|          |          |           |             |           |              |         |
|          |          |           |             |           |              |         |

BETA EFFICIENCY DATA

| SOURCE # | ACTIVITY   | TOTAL CTS | TIME        | GROSS CPM | BKG. CPM     | NET CPM |
|----------|------------|-----------|-------------|-----------|--------------|---------|
| 763/84   | 18700 dpm  | 12000     | 2 min       | 6000      | 266          | 5734    |
| 764/84   | 146000 dpm | 94500     | 2 min       | 47250     | 266          | 46984   |
| NET CPM  | EFF        | C.F.      | AVERAGE EFF |           | AVERAGE C.F. |         |
| 5734     | 30.7%      | 3.3       | 31.5%       |           | 3.2          |         |
| 46984    | 32.2%      | 3.1       |             |           |              |         |

GAS DECAY CALIBRATION

| TIME      | CPM  | PERCENT | TIME      | CPM  | PERCENT |
|-----------|------|---------|-----------|------|---------|
| INITIAL   | 6040 | 100.0%  | 3.0 HOURS | 5950 | 98.5%   |
| 1.0 HOUR  | 6000 | 99.3%   | 3.5 HOURS | 5910 | 97.8%   |
| 1.5 HOURS | 5980 | 99.0%   | 4.0 HOURS | 5940 | 98.3%   |
| 2.0 HOURS | 5900 | 97.7%   | 4.5 HOURS |      |         |
| 2.5 HOURS | 5990 | 99.2%   | 5.0 HOURS |      |         |

DETECTOR DATA

| ALPHA - HP 100A DETECTOR | BETA - HP 100A DETECTOR    |
|--------------------------|----------------------------|
| HIGH VOLTAGE SETTING:    | HIGH VOLTAGE SETTING: 1670 |
| CC:                      | CC: 1.00 E+00              |
| DT:                      | DT: 1.00 E-06              |
| ALARM:                   | ALARM: Not Set             |

CALIBRATED BY: Larry Smith

SIGNATURE: 

ESP-2 CALIBRATION (Front Page)

ESP-2 S/N: 1593

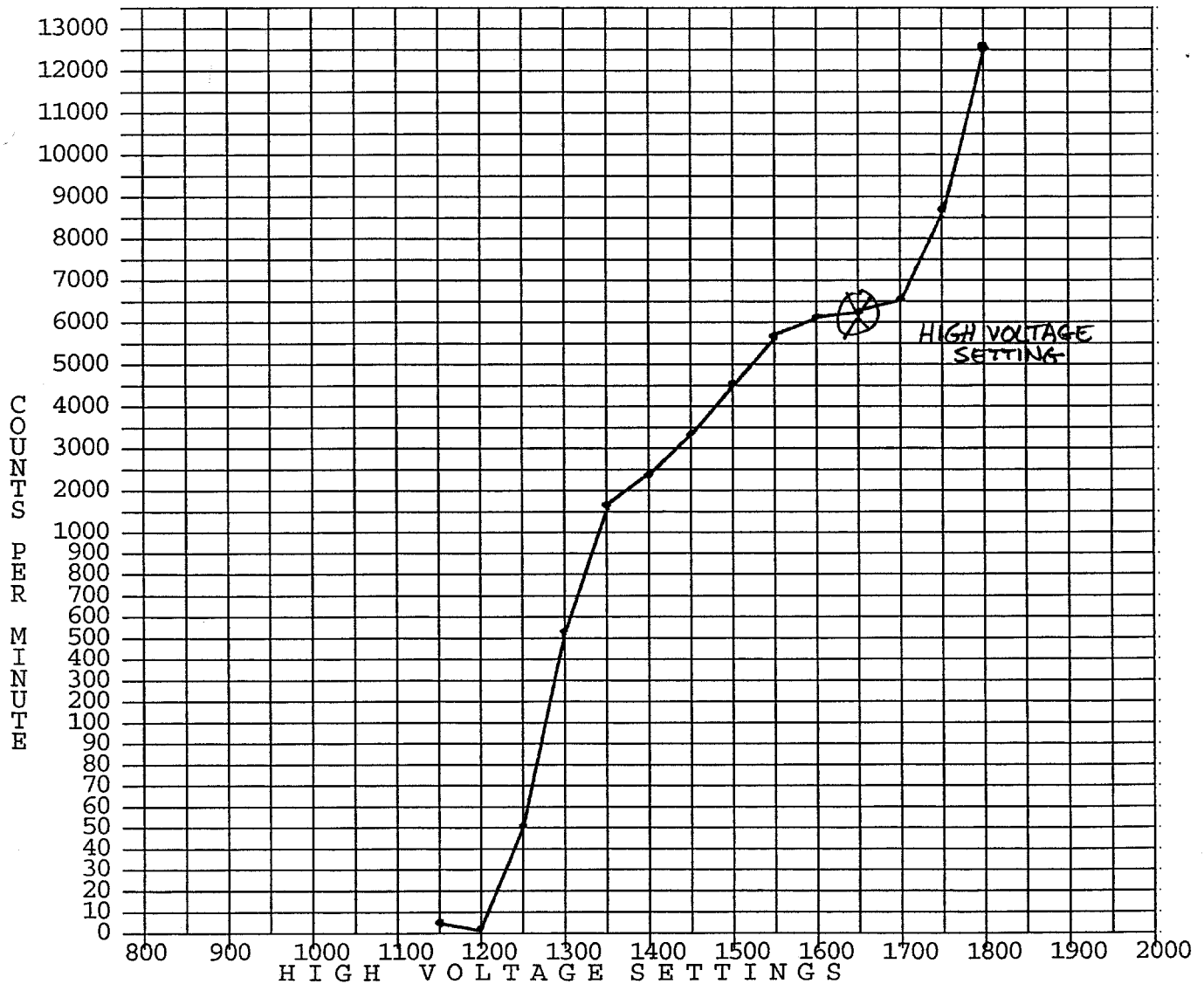
TAB #: *CODE # 11*

DATE: 4/15/93

PLATEAU DATA

| ALPHA |     |      |     | BETA |      |      |       |
|-------|-----|------|-----|------|------|------|-------|
| HV    | CTS | HV   | CTS | HV   | CTS  | HV   | CTS   |
| 850   |     | 1250 |     | 1150 | 5    | 1550 | 5700  |
| 900   |     | 1300 |     | 1200 | 1    | 1600 | 6080  |
| 950   |     | 1350 |     | 1250 | 50   | 1650 | 6250  |
| 1000  |     | 1400 |     | 1300 | 542  | 1700 | 6570  |
| 1050  |     | 1450 |     | 1350 | 1580 | 1750 | 8790  |
| 1100  |     | 1500 |     | 1400 | 2390 | 1800 | 12600 |
| 1150  |     | 1550 |     | 1450 | 3420 | 1850 |       |
| 1200  |     | 1600 |     | 1500 | 4590 | 1900 |       |

PLATEAU PLOT



ESP-2 CALIBRATION (Back Page)

|                     |  |               |
|---------------------|--|---------------|
| ESP-2 SERIAL # 1593 | TAB #: <del>9</del> <sup>10</sup> CODE #11 | DATE: 4/15/93 |
|---------------------|--|---------------|

ALPHA EFFICIENCY DATA

| SOURCE #   | ACTIVITY | GROSS CTS | TIME | NET CTS | EFF.    | C.F.    |
|------------|----------|-----------|------|---------|---------|---------|
|            | dpm      |           |      |         |         |         |
|            | dpm      |           |      |         |         |         |
|            | dpm      |           |      |         |         |         |
| BACKGROUND |          |           |      |         | Average | Average |

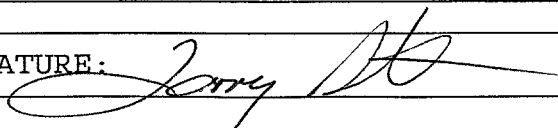
BETA EFFICIENCY DATA (Note: Eff= Net Cts - Bkg. / dpm)

| SOURCE #   | ACTIVITY   | GROSS CTS | TIME   | NET CTS | EFF.            | C.F.           |
|------------|------------|-----------|--------|---------|-----------------|----------------|
| 762/84     | 1310 dpm   | 3150      | 5 min. | 630     | 21.9%           | 4.5            |
| 763/84     | 18700 dpm  | 30600     | 5 min. | 6120    | 30.9%           | 3.2            |
| 764/84     | 146000 dpm | 237000    | 5 min. | 47400   | 32.2%           | 3.1            |
| BACKGROUND |            | 1710      | 5 min. | 342     | 28.3<br>Average | 3.6<br>Average |

GAS DECAY CALIBRATION

| TIME      | BETA CPM | PERCENT | TIME      | BETA CPM | PERCENT |
|-----------|----------|---------|-----------|----------|---------|
| INITIAL   | 6100     |         | 3.0 HOURS | 6210     | 101.8   |
| 1.0 HOUR  | 6150     | 100.8   | 3.5 HOURS | 6180     | 101.3   |
| 1.5 HOURS | 6250     | 102.5   | 4.0 HOURS | 6080     | 99.6%   |
| 2.0 HOURS | 6200     | 101.6   | 4.5 HOURS | 6180     | 101.3%  |
| 2.5 HOURS | 6110     | 100.0   | 5.0 HOURS | 6180     | 101.3%  |

| DETECTOR DATA:        | ALPHA HP-100A | BETA HP-100A |
|-----------------------|---------------|--------------|
| HIGH VOLTAGE SETTING: | N/A           | 1650         |
| CC:                   | 1.00 E +00    | 1.00 E +00   |
| DT:                   | 1.00 E +00    | 1.00 E -06   |
| ALARM:                | NOT SET       | NOT SET      |

|                            |   |
|----------------------------|---|
| CALIBRATED BY: Larry Smith | SIGNATURE:  |
|----------------------------|---|

**CODE NUMBER 12**

**REPORT #001**

|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1595 | INSTRUMENT CODE: | 12 | DATE: | 8/18/98 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

| SOURCE # | ACTIVITY<br>dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-----------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 763/84   | 18699           | 32900           | 5                    | 6580                         | 270                        | 6310    |
|          | BACKGROUND      | 1350            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6310    | 33.7%      | 2.96                 | 33.7%              | 2.96                         |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1600 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm<sup>2</sup> PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6520   |                                | 3 HOURS                    | 6230   | 95.6%                          |
| 1 HOUR                     | 6470   | 99.2%                          | 3.5 HOURS                  | 6100   | 93.6%                          |
| 1.5 HOURS                  | 6390   | 98%                            | 4 HOURS                    | 5990   | 91.8%                          |
| 2 HOURS                    | 6350   | 97.4%                          | 4.5 HOURS                  | 5920   | 90.8%                          |
| 2.5 HOURS                  | 6300   | 96.6%                          | 5 HOURS                    | -      | -                              |

|                |                          |
|----------------|--------------------------|
| CALIBRATED BY: | Carmen A. Vergari        |
| SIGNATURE:     | <i>Carmen A. Vergari</i> |

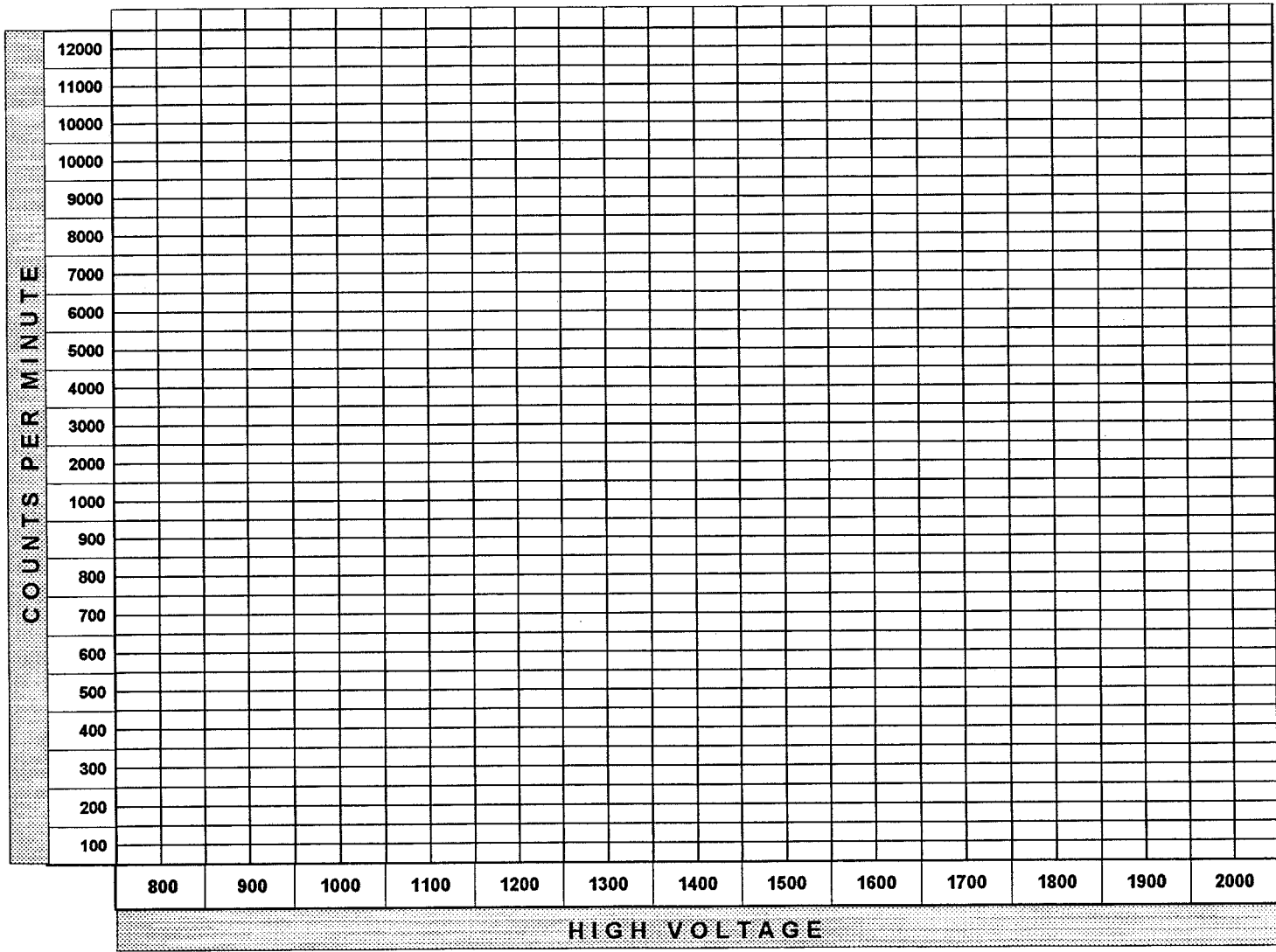
|       |         |
|-------|---------|
| DATE: | 8/18/98 |
|-------|---------|

COMMENTS: Calibrated with Ludlum 48-68 probe. DO NOT USE IN EXCESS OF 4 HOURS.



|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 79     | 1650         | 6490   |
| 900          | -      | 1300         | 711    | 1700         | 6830   |
| 950          | -      | 1350         | 1420   | 1750         | 6780   |
| 1000         | -      | 1400         | 2850   | 1800         | 9670   |
| 1050         | -      | 1450         | 3950   | 1850         | -      |
| 1100         | -      | 1500         | 5160   | 1900         | -      |
| 1150         | -      | 1550         | 6160   | 1950         | -      |
| 1200         | 8      | 1600         | 6560   | 2000         | -      |



|            |      |                  |    |       |        |
|------------|------|------------------|----|-------|--------|
| ESP-2 S/N: | 1595 | INSTRUMENT CODE: | 12 | DATE: | 4/9/98 |
|------------|------|------------------|----|-------|--------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

| SOURCE # | ACTIVITY<br>- dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 763/84   | 18699             | 32200           | 5                    | 6440                         | 280                        | 6160    |
|          | BACKGROUND        | 1400            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6160    | 32.9%      | 3.0                  | 32.9%              | 3.0                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1600 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6370   |                                | 3 HOURS                    | 6460   | 101.4%                         |
| 1 HOUR                     | 6440   | 101%                           | 3.5 HOURS                  | 6480   | 101.7%                         |
| 1.5 HOURS                  | 6390   | 100.3%                         | 4 HOURS                    | 6560   | 103%                           |
| 2 HOURS                    | 6410   | 100.6%                         | 4.5 HOURS                  | 6420   | 100.7%                         |
| 2.5 HOURS                  | 6430   | 100.9%                         | 5 HOURS                    | 6400   | 100.4%                         |

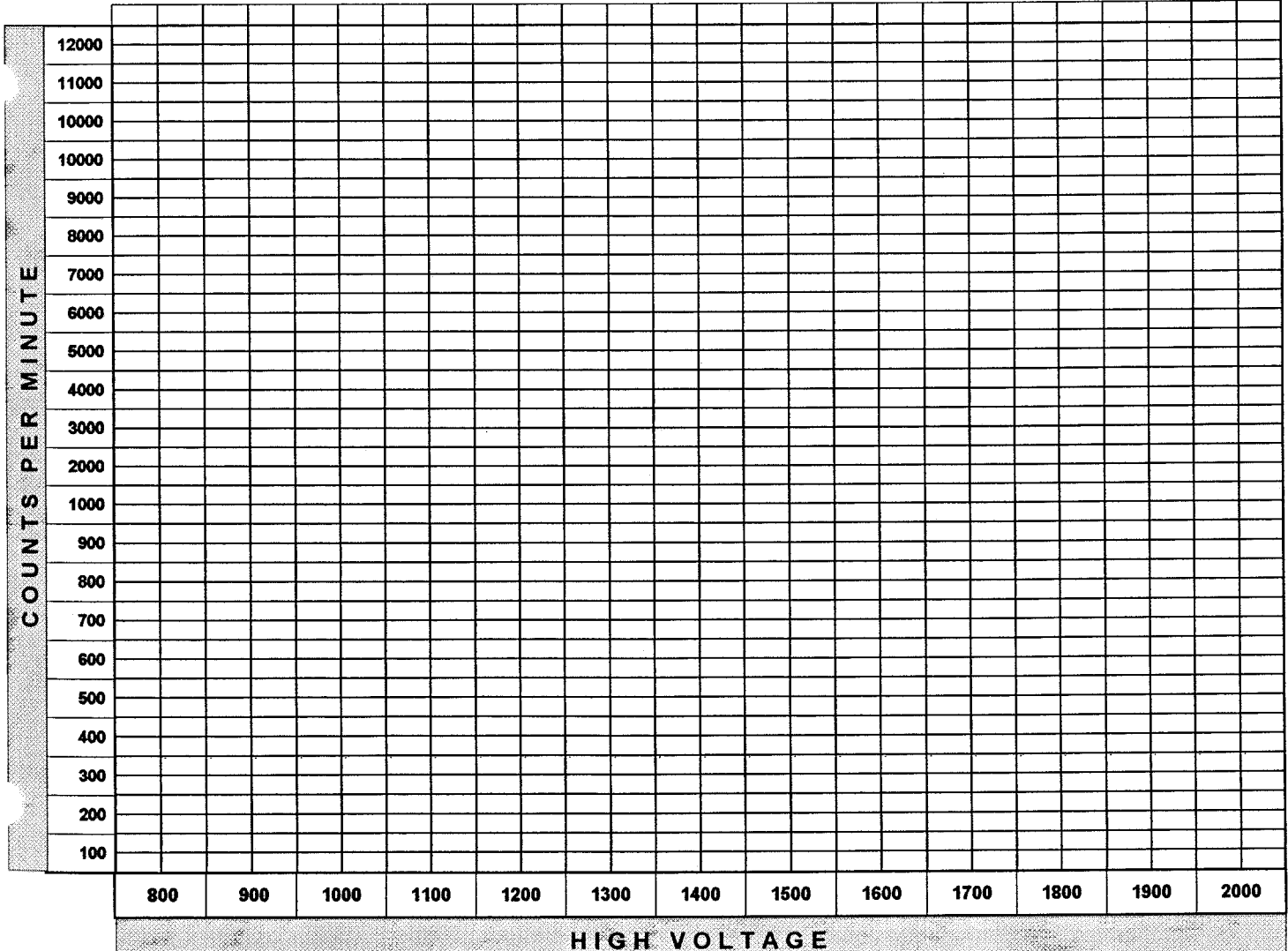
|                |                       |
|----------------|-----------------------|
| CALIBRATED BY: | Carmen Vergari        |
| SIGNATURE:     | <i>Carmen Vergari</i> |

|       |        |
|-------|--------|
| DATE: | 4/9/98 |
|-------|--------|

|           |                                    |
|-----------|------------------------------------|
| COMMENTS: | Calibrated with ludlum 43-68 probe |
|-----------|------------------------------------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 136    | 1650         | 6600   |
| 900          | -      | 1300         | 901    | 1700         | 6480   |
| 950          | -      | 1350         | 1670   | 1750         | 9760   |
| 1000         | -      | 1400         | 3070   | 1800         | 15000  |
| 1050         | -      | 1450         | 4410   | 1850         | -      |
| 1100         | -      | 1500         | 5510   | 1900         | -      |
| 1150         | -      | 1550         | 6310   | 1950         | -      |
| 1200         | 10     | 1600         | 6280   | 2000         | -      |



|            |      |                  |    |       |        |
|------------|------|------------------|----|-------|--------|
| ESP-2 S/N: | 1595 | INSTRUMENT CODE: | 12 | DATE: | 1/5/98 |
|------------|------|------------------|----|-------|--------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

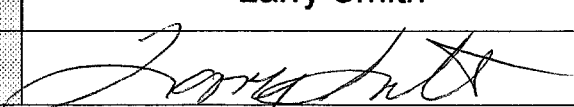
| SOURCE # | ACTIVITY<br>- dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 764/84   | 146000            | 261000          | 5                    | 52000                        | 272                        | 51928   |
|          | BACKGROUND        | 1360            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 51928   | 35.6%      | 2.8                  | 35.6%              | 2.8                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 51900  | -                              | 3 HOURS                    | 52200  | 100.6%                         |
| 1 HOUR                     | 52000  | 100.2%                         | 3.5 HOURS                  | 52000  | 100.2%                         |
| 1.5 HOURS                  | 52100  | 100.4%                         | 4 HOURS                    | 51900  | 100%                           |
| 2 HOURS                    | 51800  | 99.8%                          | 4.5 HOURS                  | 51700  | 99.6%                          |
| 2.5 HOURS                  | 51900  | 100%                           | 5 HOURS                    | 52000  | 100.2%                         |

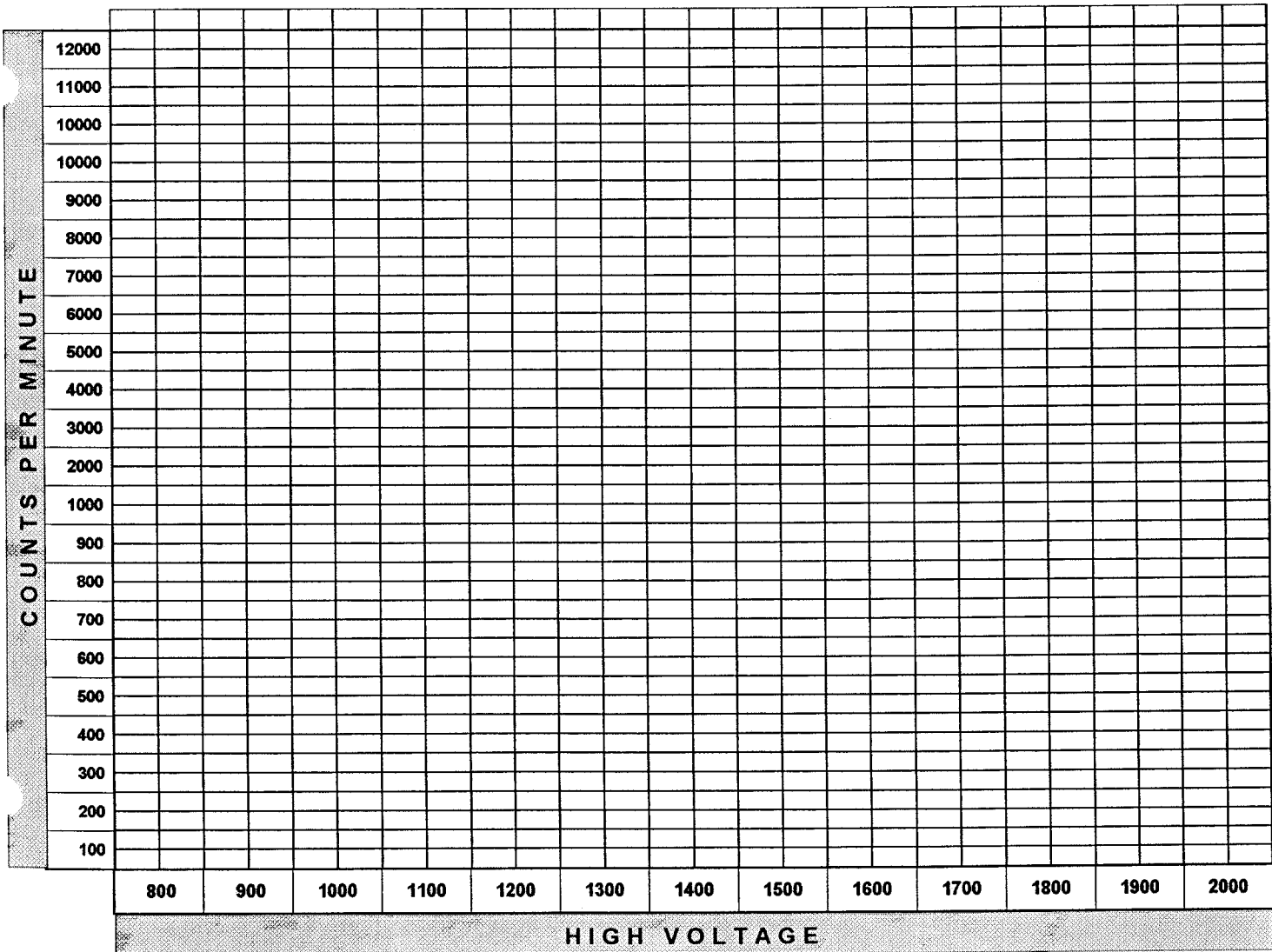
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |        |
|-------|--------|
| DATE: | 1/5/98 |
|-------|--------|

COMMENTS: Calibrated with Ludlum 43-68 probe

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 270    | 1650         | 51800  |
| 900          | -      | 1300         | 4220   | 1700         | 52500  |
| 950          | -      | 1350         | 10500  | 1750         | 52900  |
| 1000         | -      | 1400         | 21900  | 1800         | 75600  |
| 1050         | -      | 1450         | 32000  | 1850         | -      |
| 1100         | -      | 1500         | 42300  | 1900         | -      |
| 1150         | -      | 1550         | 49700  | 1950         | -      |
| 1200         | 4      | 1600         | 52000  | 2000         | -      |





GTS Instrument Services  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                 | INSTRUMENT INFORMATION                        |
|--------------------------------------|---|
| Customer Name: <u>Westinghouse</u>   | Instrument Manufacturer <u>Eberline</u>       |
| Customer Address: <u>PO Box 3700</u> | Model <u>ESP-2</u> Serial Number <u>01595</u> |
| <u>Pittsburgh, PA 15230</u>          | External Probe(s) _____ Serial # _____        |
| Customer P.O.# <u>MB-14027-S</u>     | Calibration Method <u>Pulser s/n 101500</u>   |
| Work Order # <u>I-97-11-208</u>      |   |

### INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |               | Comment                         |
|------------------|----------------------------|---------------------|---------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib.  |                                 |
| 1 DIGITAL RATE   | 200 CPM                    | 2.00 + 02 CPM       | 2.00 + 02 CPM | All Calibrations Btn. + & - 10% |
| 2                | 800                        | 8.00 + 02           | 8.00 + 02     |                                 |
| 3                | 2K                         | 2.00 + 03           | 2.00 + 03     | Battery: OK                     |
| 4                | 8K                         | 8.00 + 03           | 8.00 + 03     |                                 |
| 5                | 20K                        | 2.00 + 04           | 2.00 + 04     | Reset: OK                       |
| 6                | 80K                        | 8.00 + 04           | 8.00 + 04     |                                 |
| 7                | 200K                       | 2.00 + 05           | 2.00 + 05     | Light: OK                       |
| 8                | 800K                       | 8.02 + 05           | 8.00 + 05     |                                 |
| 9                | 2M                         | 2.01 + 06           | 2.01 + 06     | Speaker: OK                     |
| 10               |                            |                     |               |                                 |
| 11 SCALER        | 200                        | 2.00 + 02           | 2.00 + 02     | Alarm: OK                       |
| 12 INTEGRATED    | 2K                         | 2.00 + 03           | 2.00 + 03     |                                 |
| 13 ! MIN COUNTS  | 20K                        | 2.00 + 04           | 2.00 + 04     | High Voltage = 1650 Volts       |
| 14               | 200K                       | 2.00 + 05           | 2.00 + 05     |                                 |
| 15               | 2M                         | 2.01 + 06           | 2.01 + 06     | DT = 1.10 -07                   |
| 16               |                            |                     |               | CC = 1.00 + 00                  |
| 17               |                            |                     |               |                                 |
| 18               |                            |                     |               | Electronic calibration only     |
| 19               |                            |                     |               |                                 |
| 20               |                            |                     |               |                                 |
| 21               |                            |                     |               |                                 |
| 22               |                            |                     |               |                                 |
| 23               |                            |                     |               |                                 |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: [Signature]  
 Calibration Date: 12-31-97  
 Next Calibration Due: 03-31-98

I certify that the above information is correct:  
[Signature] Administrative Coordinator  
 12-31-97 Date

|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1595 | INSTRUMENT CODE: | 12 | DATE: | 6/30/97 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

| SOURCE # | ACTIVITY<br>dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-----------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 763/84   | 18700           | 31600           | 5                    | 6320                         | 262                        | 6058    |
|          | BACKGROUND      | 1310            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6058    | 33.7%      | 3.0                  | 33.7%              | 3.0                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6400   | -----                          | 3 HOURS                    | 6420   | 100.3%                         |
| 1 HOUR                     | 6410   | 100.2%                         | 3.5 HOURS                  | 6370   | 99.6%                          |
| 1.5 HOURS                  | 6270   | 98.0%                          | 4 HOURS                    | 6290   | 98.3%                          |
| 2 HOURS                    | 6360   | 99.3%                          | 4.5 HOURS                  | 6240   | 97.5%                          |
| 2.5 HOURS                  | 6290   | 98.2%                          | 5 HOURS                    | 6370   | 99.5%                          |

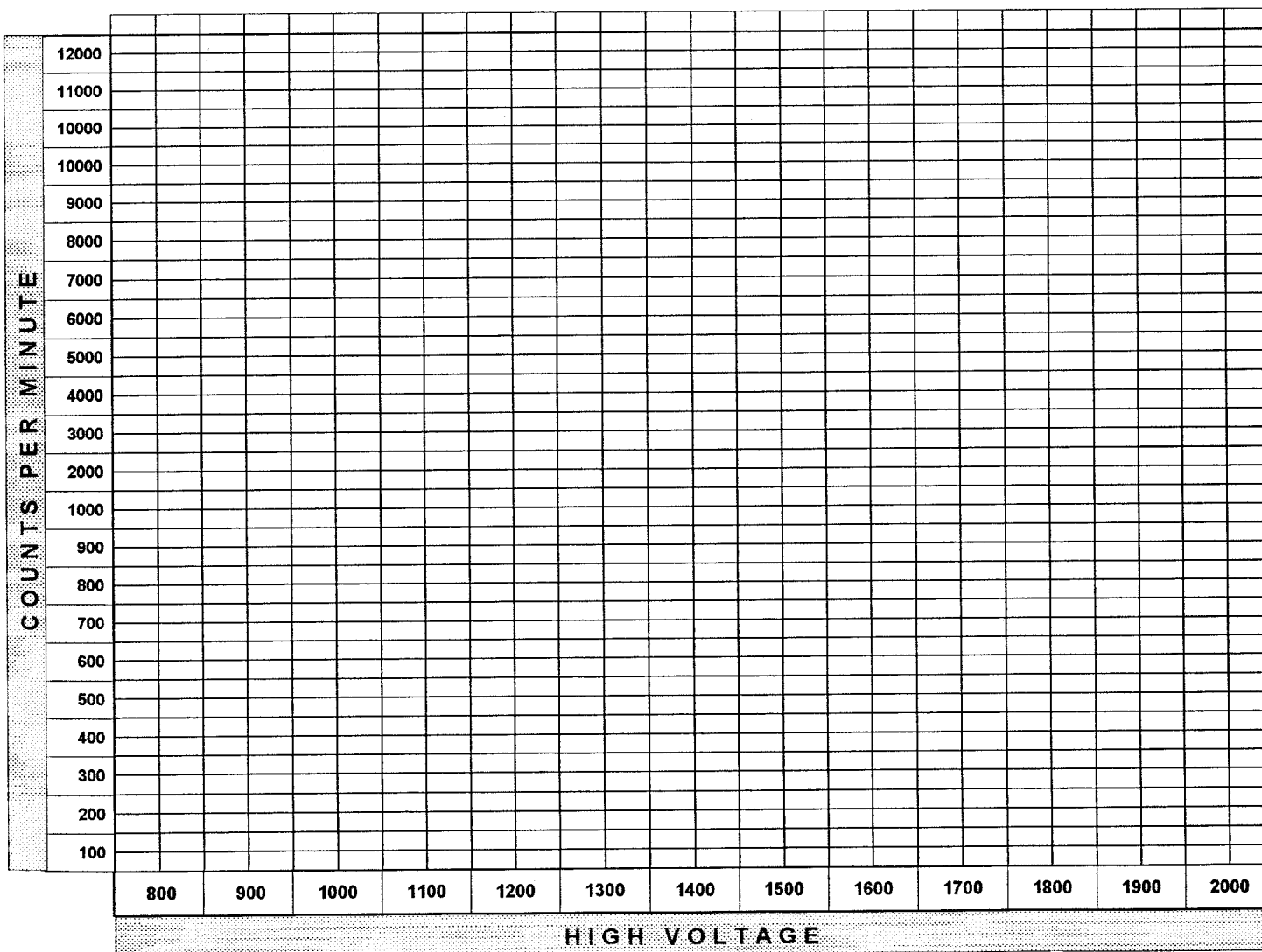
|                |                    |
|----------------|--------------------|
| CALIBRATED BY: | James Gemza        |
| SIGNATURE:     | <i>James Gemza</i> |

|       |         |
|-------|---------|
| DATE: | 6/30/97 |
|-------|---------|

|           |  |
|-----------|--|
| COMMENTS: | Calibrated with Ludlum 43-68 Probe /10 ft. cable |
|-----------|--|

ALPHA / BETA: BETA

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -----  | 1250         | 7      | 1650         | 6390   |
| 900          | -----  | 1300         | 155    | 1700         | 6630   |
| 950          | -----  | 1350         | 534    | 1750         | 6770   |
| 1000         | -----  | 1400         | 1640   | 1800         | 14400  |
| 1050         | -----  | 1450         | 2740   | 1850         | -----  |
| 1100         | -----  | 1500         | 3910   | 1900         | -----  |
| 1150         | -----  | 1550         | 5100   | 1950         | -----  |
| 1200         | 3      | 1600         | 5990   | 2000         | -----  |





|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1595 | INSTRUMENT CODE: | 12 | DATE: | 3/25/97 |
|------------|------|------------------|----|-------|---------|

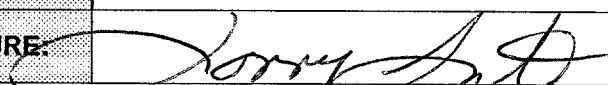
|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |                 |                 |                      |                              |                            |         |
|--|-----------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| SOURCE #   | ACTIVITY<br>dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
| 763/84   | 18700           | 31400           | 5                    | 6280                         | 246                        | 6034    |
|  |                 |                 |                      |                              |                            |         |
|  | BACKGROUND      | 1230            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6034    | 32.3%      | 3.1                  | 32.3%              | 3.1                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1600 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm2 PROBE |        |                                |                            |        |                                |
|--|--------|--------------------------------|----------------------------|--------|--------------------------------|
| ELAPSED TIME<br>(in hours)               | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
| INITIAL                                  | 6190   | -                              | 3 HOURS                    | 6220   | 100.5%                         |
| 1 HOUR                                   | 6210   | 100.3%                         | 3.5 HOURS                  | 6250   | 101%                           |
| 1.5 HOURS                                | 6220   | 100.5%                         | 4 HOURS                    | 6340   | 102.4%                         |
| 2 HOURS                                  | 6200   | 100.2%                         | 4.5 HOURS                  | 6120   | 98.9%                          |
| 2.5 HOURS                                | 6180   | 99.8%                          | 5 HOURS                    | 6100   | 98.5%                          |

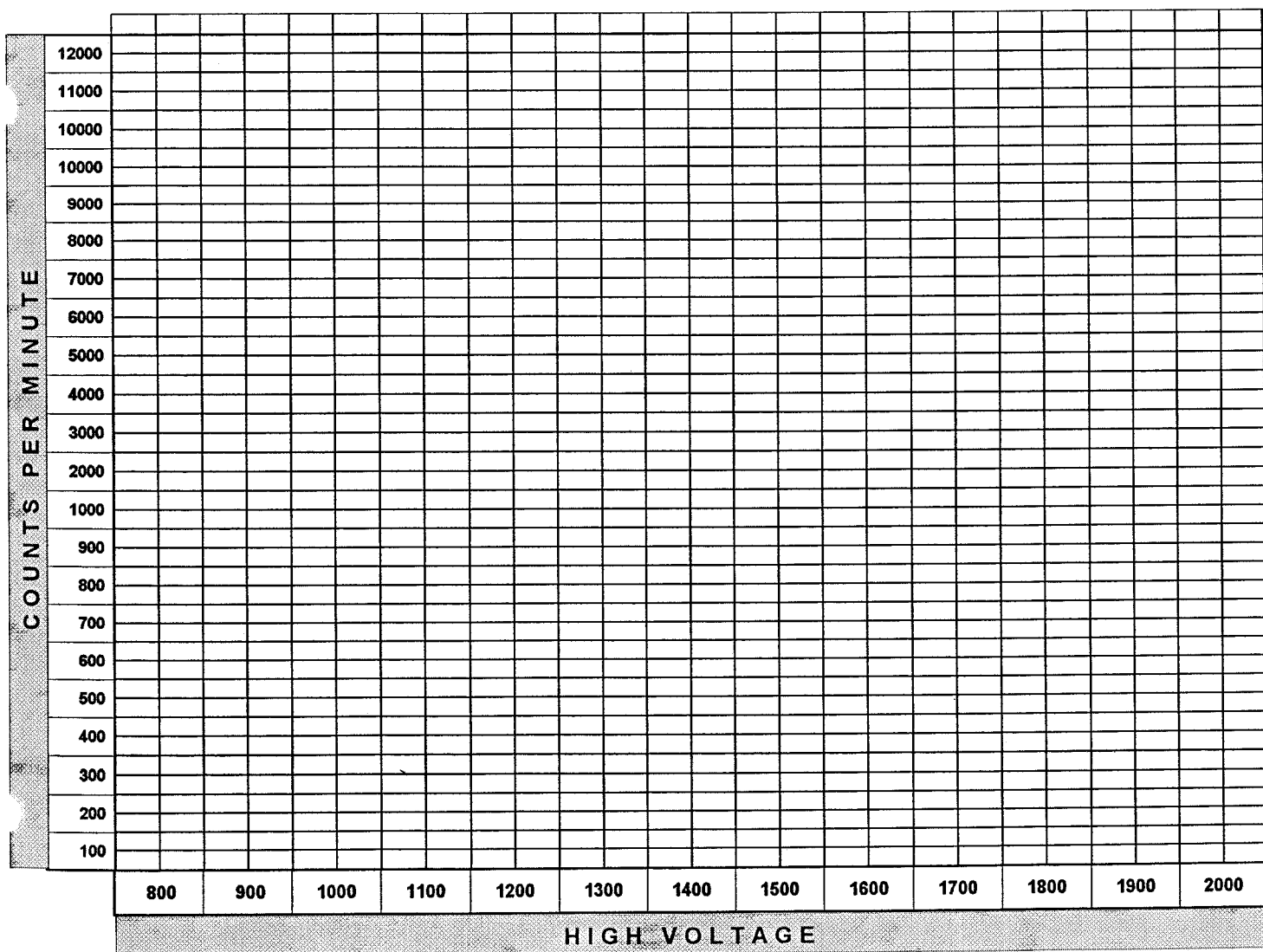
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |         |
|-------|---------|
| DATE: | 3/25/97 |
|-------|---------|

|           |                                    |
|-----------|------------------------------------|
| COMMENTS: | Calibrated with Ludlum 43-68 probe |
|-----------|------------------------------------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 160    | 1650         | 6480   |
| 900          | -      | 1300         | 298    | 1700         | 6410   |
| 950          | -      | 1350         | 888    | 1750         | 6490   |
| 1000         | -      | 1400         | 2130   | 1800         | 9950   |
| 1050         | -      | 1450         | 3290   | 1850         | -      |
| 1100         | -      | 1500         | 4490   | 1900         | -      |
| 1150         | -      | 1550         | 6020   | 1950         | -      |
| 1200         | 11     | 1600         | 6410   | 2000         | -      |



|            |      |                  |    |       |          |
|------------|------|------------------|----|-------|----------|
| ESP-2 S/N: | 1595 | INSTRUMENT CODE: | 12 | DATE: | 12/20/96 |
|------------|------|------------------|----|-------|----------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

| SOURCE # | ACTIVITY<br>- dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 763/84   | 18700             | 31400           | 5                    | 6280                         | 284                        | 5996    |
|          |                   |                 |                      |                              |                            |         |
|          | BACKGROUND        | 1420            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 5996    | 32.1%      | 3.1                  | 32.1%              | 3.1                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1600 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6400   | -                              | 3 HOURS                    | 6320   | 98.8%                          |
| 1 HOUR                     | 6250   | 97.7%                          | 3.5 HOURS                  | 6310   | 98.6%                          |
| 1.5 HOURS                  | 6350   | 99.2%                          | 4 HOURS                    | 6350   | 99.2%                          |
| 2 HOURS                    | 6340   | 99.1%                          | 4.5 HOURS                  | 6340   | 99.1%                          |
| 2.5 HOURS                  | 6310   | 98.6%                          | 5 HOURS                    | 6370   | 99.5%                          |

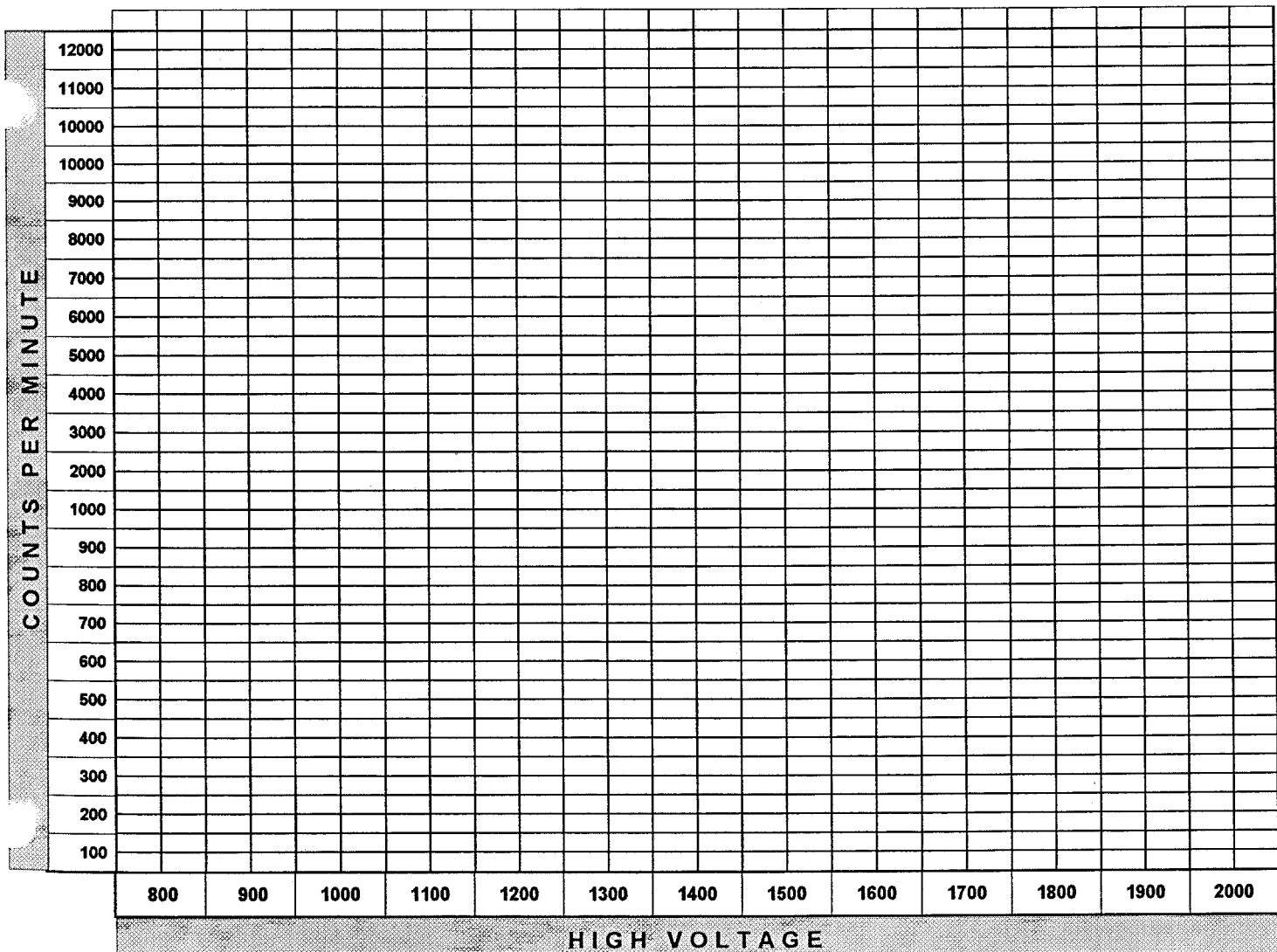
|                |                          |
|----------------|--------------------------|
| CALIBRATED BY: | Carmen Vergari           |
| SIGNATURE:     | <i>Carmen A. Vergari</i> |

|       |          |
|-------|----------|
| DATE: | 12/20/96 |
|-------|----------|

COMMENTS: Calibrated with Ludlum 43-68 probe.

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 403    | 1650         | 6330   |
| 900          | -      | 1300         | 1290   | 1700         | 6380   |
| 950          | -      | 1350         | 2070   | 1750         | 7230   |
| 1000         | -      | 1400         | 3360   | 1800         | 12500  |
| 1050         | -      | 1450         | 4730   | 1850         | -      |
| 1100         | 12     | 1500         | 5740   | 1900         | -      |
| 1150         | 9      | 1550         | 6130   | 1950         | -      |
| 1200         | 31     | 1600         | 3430   | 2000         | -      |



|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1595 | INSTRUMENT CODE: | 12 | DATE: | 8/26/96 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

| SOURCE # | ACTIVITY<br>* dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 764/84   | 146000            | 254000          | 5                    | 50800                        | 268                        | 50532   |
|          | BACKGROUND        | 1340            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 50532   | 34.6%      | 2.9                  | 34.6%              | 2.9                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1600 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm<sup>2</sup> PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6290   |                                | 3 HOURS                    | 6300   | 100.2%                         |
| 1 HOUR                     | 6360   | 101.2%                         | 3.5 HOURS                  | 6340   | 100.8%                         |
| 1.5 HOURS                  | 6490   | 103.1%                         | 4 HOURS                    | 6300   | 100.2%                         |
| 2 HOURS                    | 6210   | 98.7%                          | 4.5 HOURS                  | 6340   | 100.8%                         |
| 2.5 HOURS                  | 6270   | 99.7%                          | 5 HOURS                    | 6290   | 100%                           |

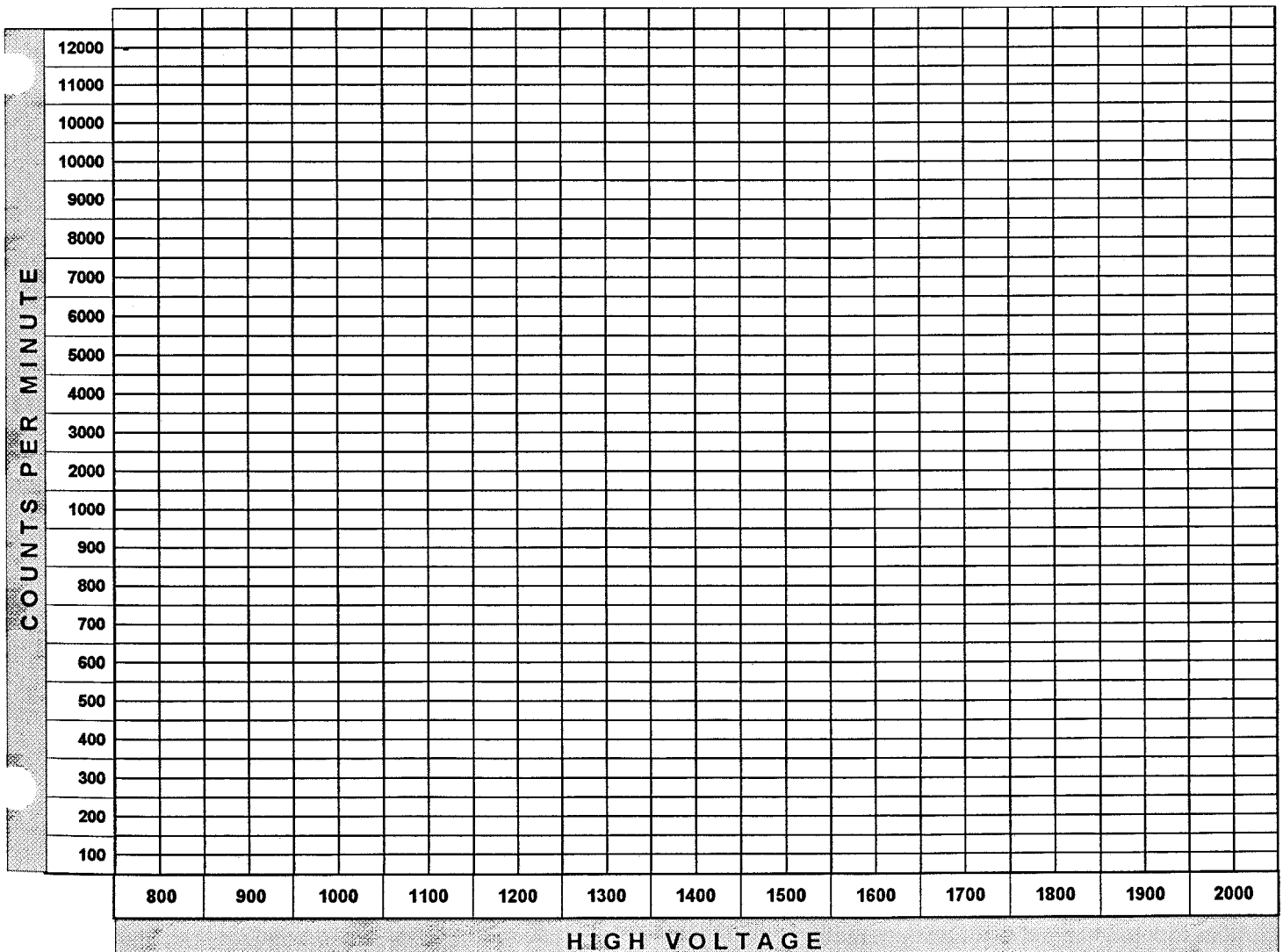
|                |                       |
|----------------|-----------------------|
| CALIBRATED BY: | Carmen Vergari        |
| SIGNATURE:     | <i>Carmen Vergari</i> |

|       |         |
|-------|---------|
| DATE: | 8/26/96 |
|-------|---------|

|           |                                    |
|-----------|------------------------------------|
| COMMENTS: | Calibrated with Ludlum 43-68 probe |
|-----------|------------------------------------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 223    | 1650         | 6340   |
| 900          | -      | 1300         | 1040   | 1700         | 6530   |
| 950          | -      | 1350         | 1800   | 1750         | 6680   |
| 1000         | -      | 1400         | 3240   | 1800         | 12800  |
| 1050         | -      | 1450         | 4520   | 1850         | -      |
| 1100         | 8      | 1500         | 5650   | 1900         | -      |
| 1150         | 8      | 1550         | 6340   | 1950         | -      |
| 1200         | 17     | 1600         | 6290   | 2000         | -      |



|            |      |                  |    |       |        |
|------------|------|------------------|----|-------|--------|
| ESP-2 S/N: | 1595 | INSTRUMENT CODE: | 12 | DATE: | 5/9/96 |
|------------|------|------------------|----|-------|--------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

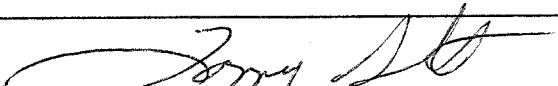
| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 763/84   | 18699        | 31800        | 5                 | 6360                      | 288                     | 6072    |
|          | BACKGROUND   | 1440         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6072    | 32.4       | 3.1               | 32.4%              | 3.1                       |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1600 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 6490   | -                           | 3 HOURS                 | 6310   | 97.2%                       |
| 1 HOUR                  | 6330   | 97.5%                       | 3.5 HOURS               | 6370   | 98.2%                       |
| 1.5 HOURS               | 6400   | 98.6%                       | 4 HOURS                 | 6350   | 97.8%                       |
| 2 HOURS                 | 6330   | 97.5%                       | 4.5 HOURS               | 6380   | 98.3%                       |
| 2.5 HOURS               | 6300   | 97%                         | 5 HOURS                 | 6490   | 100%                        |

|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |        |
|-------|--------|
| DATE: | 5/9/96 |
|-------|--------|

COMMENTS: Calibrated with Ludlum 43-68 probe





CERTIFICATION OF CALIBRATION

Instrument ESP-2 / Ludlum 43-68

Serial Number 1595 / Pr099339

L-074

Type of Source Cs-137 Beta S/N L-075

MP-2 S/N 174

FLUKE 8010A S/N 2650076

| Range          | Calibration Point      | Reading                       |
|----------------|------------------------|-------------------------------|
| <u>CNT/MIN</u> | <u>18959 DPM (4π)</u>  | <u>5.59+03 CNT/MIN(29.5%)</u> |
| <u>CNT/MIN</u> | <u>190358 DPM (4π)</u> | <u>5.69+04 CNT/MIN(29.9%)</u> |
|                |                        |                               |
|                |                        |                               |
|                |                        |                               |

When the Calibration Constant is 1.00, the 4 π counting efficiency is:

$$\frac{\text{READING}}{\text{Calibration Point CPM (4 } \pi \text{)}} \times 100 = \text{Per Cent Efficiency}$$

Calibration Constant 1.00+00 High Voltage 1.75+03 volts

Dead Time (Sec.) 7.00-06 Input Sensitivity 2 mv

Overrange N/A

Calibration sources used have calibration traceable to N.I.S.T.

Date 1-30-96

Signature [Handwritten Signature]



P.O. Number MB14039



## INSTRUMENT SERVICE RECORD

CUSTOMER: WESTINGHOUSE (PITTSBURGH, PA.)

INSTRUMENT: ESP-2

SERIAL NUMBER: 1595

Date: 1-30-96

Job Number: 26183

Service performed:

Replaced worn out keypad. Changed C11 and R2 to work better with gas proportional detectors. Replaced weak batteries. Replaced broken door latch. Cleaned and calibrated.

Performed by: Richard E. Smith

Next Calibration Date: 4-30-96

|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1595 | INSTRUMENT CODE: | 12 | DATE: | 2/12/96 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 763/84   | 18699        | 32500        | 5                 | 6500                      | 282                     | 6218    |
|          | BACKGROUND   | 1410         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6218    | 33.3%      | 3                 | 33.3%              | 3                         |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1600 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 6670   | -                           | 3 HOURS                 | 6590   | 98.5%                       |
| 1 HOUR                  | 6610   | 99.1%                       | 3.5 HOURS               | 6540   | 98.1%                       |
| 1.5 HOURS               | 6640   | 99.6%                       | 4 HOURS                 | 6600   | 98.9%                       |
| 2 HOURS                 | 6470   | 97%                         | 4.5 HOURS               | 6490   | 97.3%                       |
| 2.5 HOURS               | 6440   | 96.6%                       | 5 HOURS                 | 6540   | 98.1%                       |

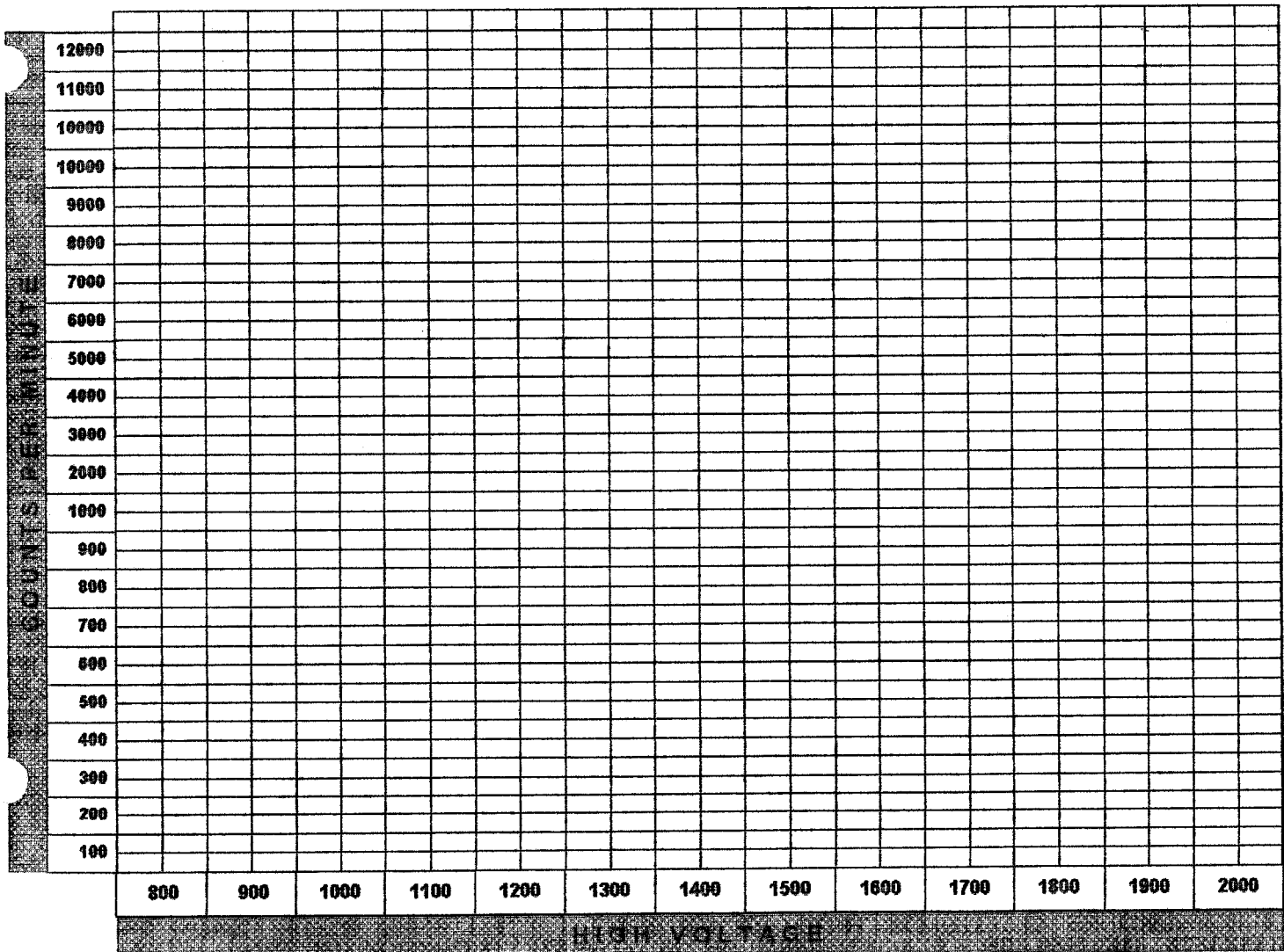
|                |             |
|----------------|-------------|
| CALIBRATED BY: | Larry Smith |
| SIGNATURE:     |             |

|       |         |
|-------|---------|
| DATE: | 2/12/96 |
|-------|---------|

COMMENTS: Calibrated with Ludlum 43-68 probe

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 195    | 1650         | 6670   |
| 900          | -      | 1300         | 971    | 1700         | 6570   |
| 950          | -      | 1350         | 2160   | 1750         | 6800   |
| 1000         | 10     | 1400         | 3280   | 1800         | 12300  |
| 1050         | 7      | 1450         | 4460   | 1850         | -      |
| 1100         | 5      | 1500         | 5660   | 1900         | -      |
| 1150         | 7      | 1550         | 6340   | 1950         | -      |
| 1200         | 6      | 1600         | 6600   | 2000         | -      |



|            |      |                  |    |       |          |
|------------|------|------------------|----|-------|----------|
| ESP-2 S/N: | 1595 | INSTRUMENT CODE: | 12 | DATE: | 11/28/95 |
|------------|------|------------------|----|-------|----------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

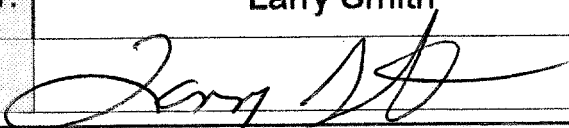
| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 763/84   | 18699        | 32500        | 5                 | 6500                      | 282                     | 6218    |
|          | BACKGROUND   | 1410         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6218    | 33.3%      | 3                 | 33.3%              | 3                         |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1700 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 6600   |                             | 3 HOURS                 | 6760   | 102.4%                      |
| 1 HOUR                  | 6880   | 104%                        | 3.5 HOURS               | 6670   | 101%                        |
| 1.5 HOURS               | 6700   | 101.5%                      | 4 HOURS                 | 6690   | 101.4%                      |
| 2 HOURS                 | 6710   | 101.7%                      | 4.5 HOURS               | 6670   | 101%                        |
| 2.5 HOURS               | 6830   | 103.5%                      | 5 HOURS                 | 6780   | 102.7%                      |

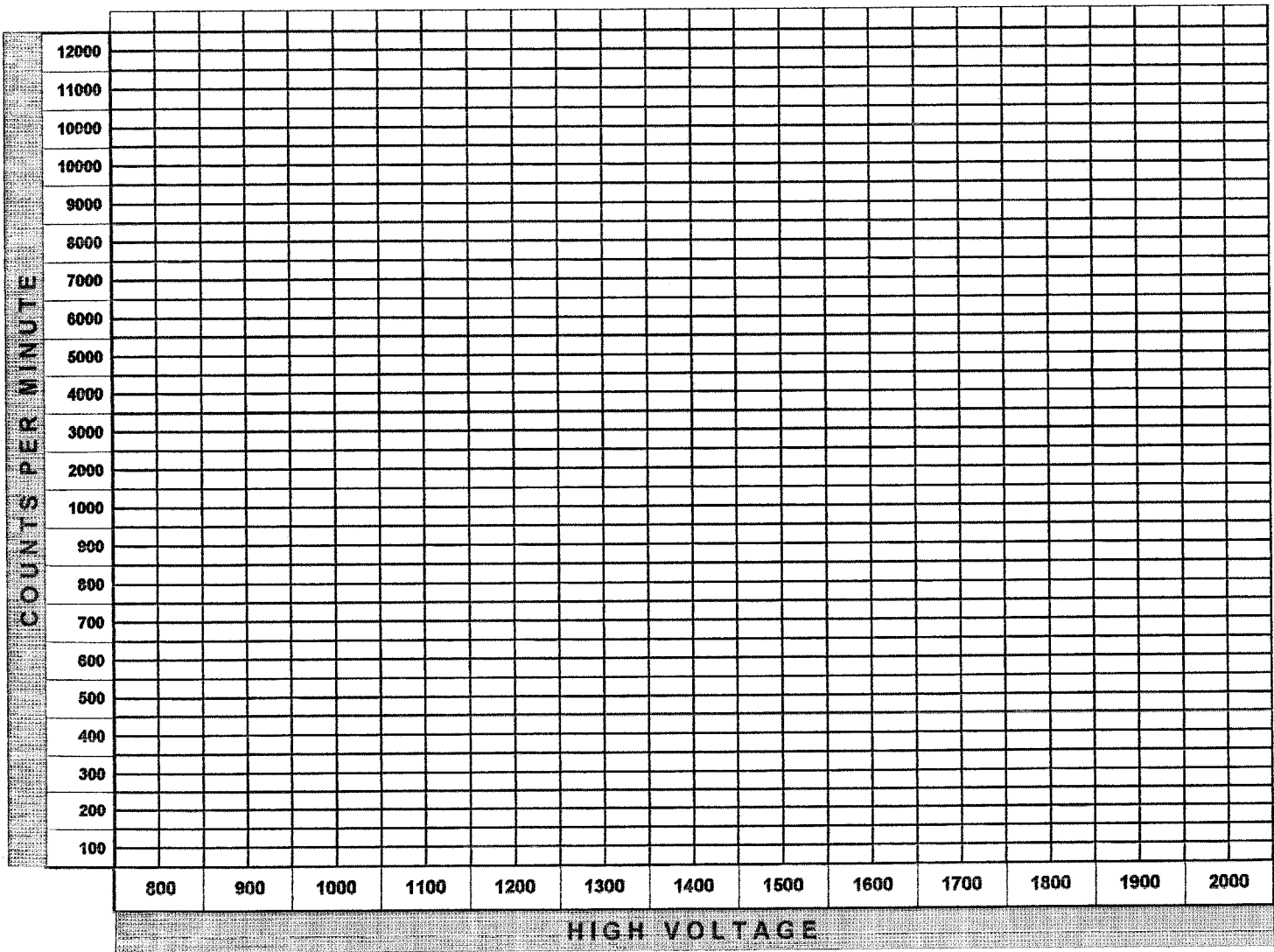
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |          |
|-------|----------|
| DATE: | 11/28/95 |
|-------|----------|

|           |                                     |
|-----------|-------------------------------------|
| COMMENTS: | Calibrated with Ludlum 43-68 probe. |
|-----------|-------------------------------------|

ALPHA / BETA: BETA

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 8      | 1650         | 6480   |
| 900          | -      | 1300         | 14     | 1700         | 6500   |
| 950          | -      | 1350         | 204    | 1750         | 6630   |
| 1000         | -      | 1400         | 857    | 1800         | 7160   |
| 1050         | -      | 1450         | 1850   | 1850         | 37700  |
| 1100         | -      | 1500         | 2980   | 1900         | -      |
| 1150         | -      | 1550         | 4680   | 1950         | -      |
| 1200         | 7      | 1600         | 5950   | 2000         | -      |



|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1595 | INSTRUMENT CODE: | 12 | DATE: | 8/30/95 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

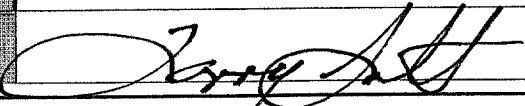
| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 763/84   | 18699        | 34200        | 5                 | 6840                      | 298                     | 6542    |
|          |              |              |                   |                           |                         |         |
|          | BACKGROUND   | 1490         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6542    | 34.9%      | 2.9               | 34.9%              | 2.9                       |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1700 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 6580   |                             | 3 HOURS                 | 6550   | 99.55                       |
| 1 HOUR                  | 6500   | 98.7%                       | 3.5 HOURS               | 6480   | 98.5%                       |
| 1.5 HOURS               | 6540   | 99.4%                       | 4 HOURS                 | 6500   | 98.8%                       |
| 2 HOURS                 | 6540   | 99.4%                       | 4.5 HOURS               | 6510   | 98.9%                       |
| 2.5 HOURS               | 6460   | 98.2%                       | 5 HOURS                 | 6570   | 99.8%                       |

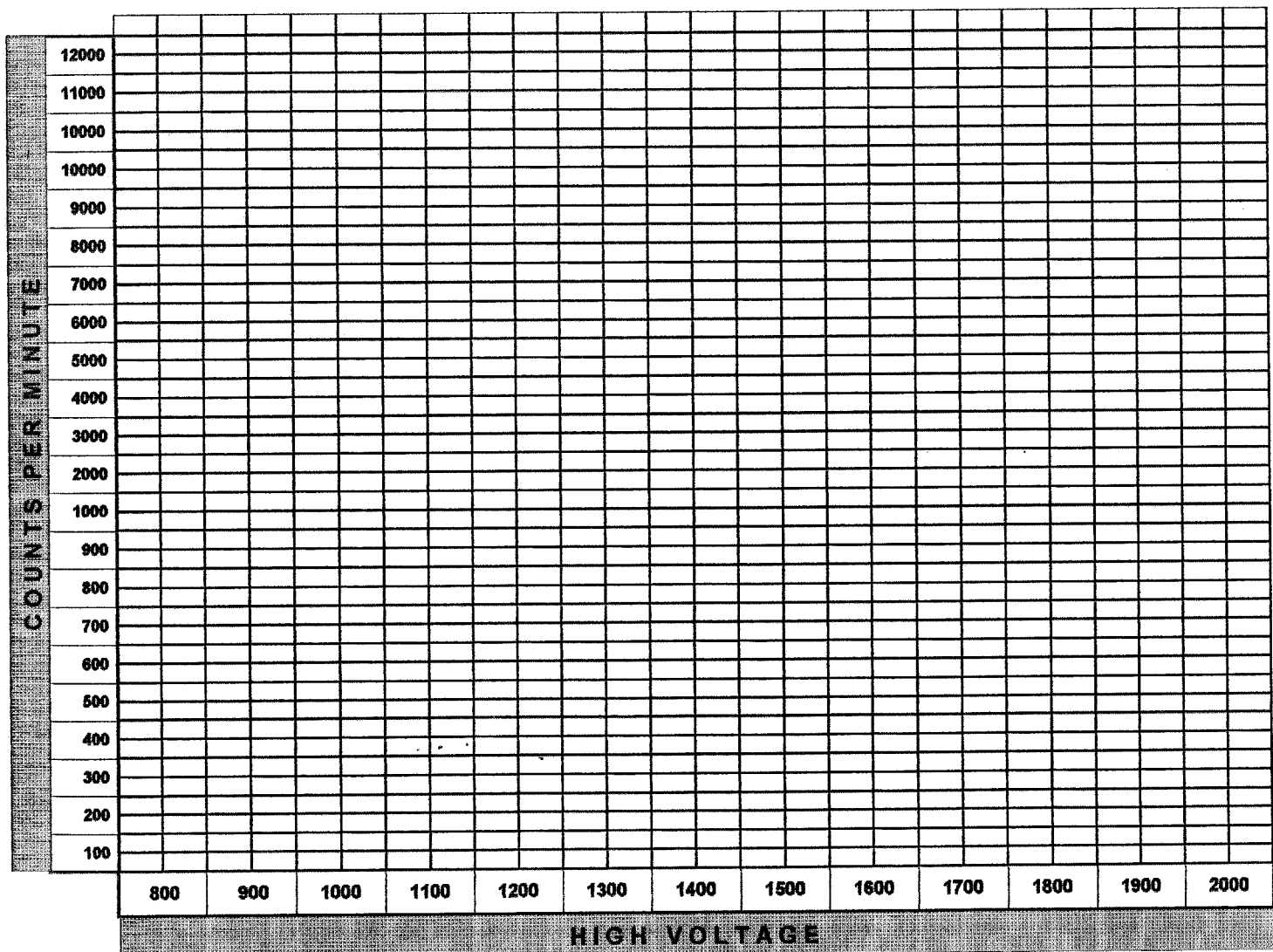
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |         |
|-------|---------|
| DATE: | 8/30/95 |
|-------|---------|

COMMENTS: Calibrated with Ludlum 43-68 probe

ALPHA / BETA: BETA

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | ---    | 1250         | 7      | 1650         | 6680   |
| 900          | ---    | 1300         | 8      | 1700         | 6940   |
| 950          | ---    | 1350         | 335    | 1750         | 7220   |
| 1000         | ---    | 1400         | 1060   | 1800         | 21500  |
| 1050         | ---    | 1450         | 2100   | 1850         | --     |
| 1100         | ---    | 1500         | 3320   | 1900         | ---    |
| 1150         | ---    | 1550         | 4850   | 1950         | ---    |
| 1200         | 5      | 1600         | 6290   | 2000         | ---    |





|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1595 | INSTRUMENT CODE: | 12 | DATE: | 5/22/95 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

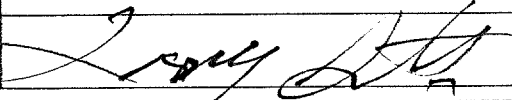
| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 763/84   | 18699        | 30600        | 5                 | 6120                      | 286                     | 5834    |
|          |              |              |                   |                           |                         |         |
|          | BACKGROUND   | 1430         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 5834    | 31.2       | 3.2               | 31.2%              | 3.2                       |
|         |            |                   |                    |                           |

|              |      |
|--------------|------|
| HIGH VOLTAGE | 1700 |
|--------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 6150   | ---                         | 3 HOURS                 | 6140   | 99.8%                       |
| 1 HOUR                  | 6150   | 100%                        | 3.5 HOURS               | 6180   | 100.5%                      |
| 1.5 HOURS               | 6110   | 99.3%                       | 4 HOURS                 | 6110   | 99.3%                       |
| 2 HOURS                 | 6180   | 100.5%                      | 4.5 HOURS               | 6170   | 100.3%                      |
| 2.5 HOURS               | 6120   | 99.5%                       | 5 HOURS                 | 6030   | 98%                         |

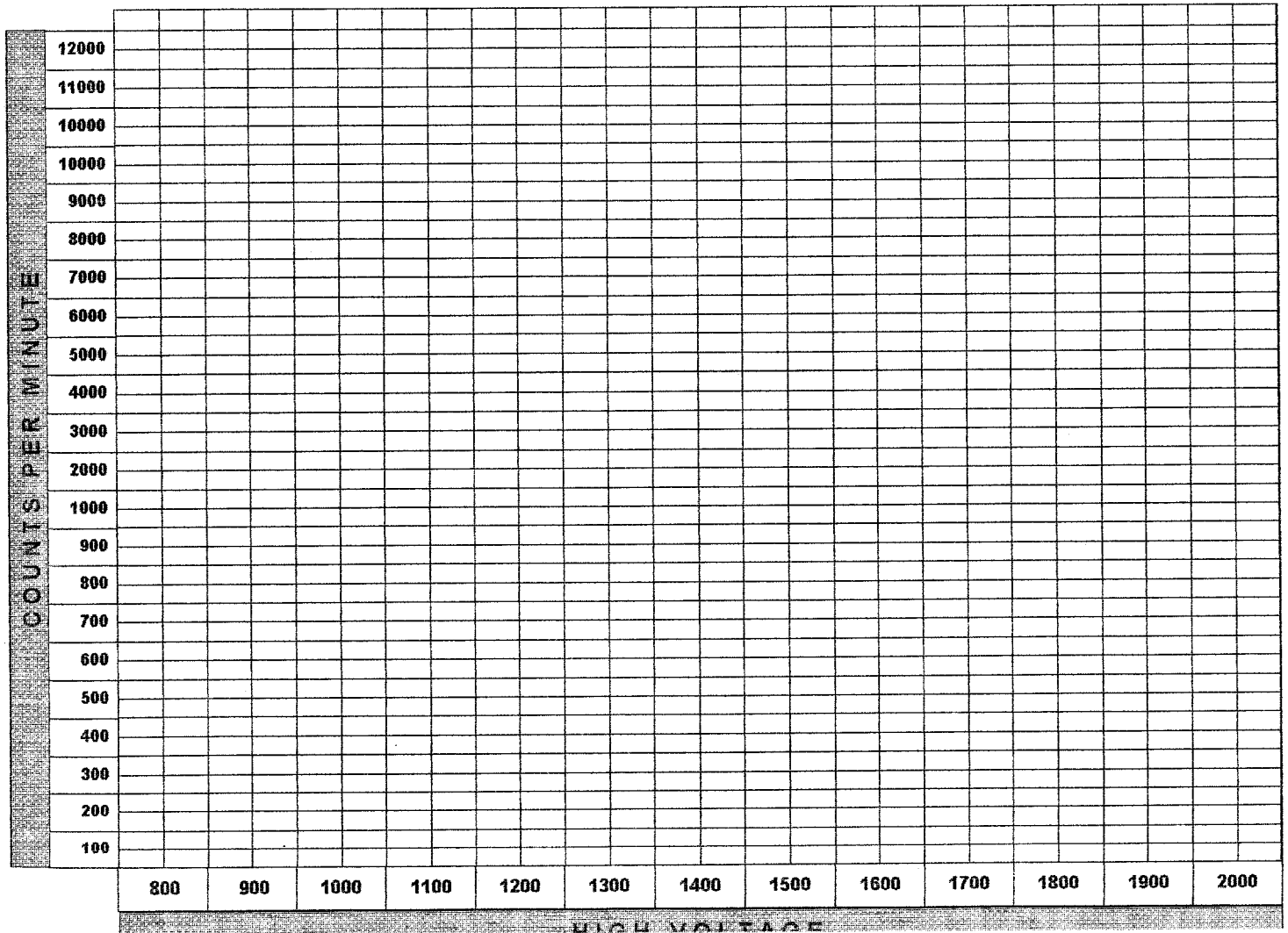
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |         |
|-------|---------|
| DATE: | 5/22/95 |
|-------|---------|

|           |                                    |
|-----------|------------------------------------|
| COMMENTS: | Calibrated with Ludlum 43-68 probe |
|-----------|------------------------------------|

ALPHA / BETA: BETA

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | ---    | 1250         | 3      | 1650         | 5940   |
| 900          | ---    | 1300         | 23     | 1700         | 6250   |
| 950          | ---    | 1350         | 473    | 1750         | 6310   |
| 1000         | ---    | 1400         | 1260   | 1800         | 16000  |
| 1050         | ---    | 1450         | 2190   | 1850         | ---    |
| 1100         | ---    | 1500         | 3400   | 1900         | ---    |
| 1150         | ---    | 1550         | 4940   | 1950         | ---    |
| 1200         | ---    | 1600         | 5980   | 2000         | ---    |



|           |      |                 |    |      |         |
|-----------|------|-----------------|----|------|---------|
| ESP-2 S/N | 1595 | INSTRUMENT CODE | 12 | DATE | 2-21-95 |
|-----------|------|-----------------|----|------|---------|

|              |      |
|--------------|------|
| ALPHA / BETA | BETA |
|--------------|------|

**EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)**

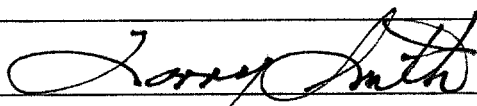
| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / 2 min) | BKG cpm (Total / 2 min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 763/84   | 18699        | 31700        | 5                 | 6340                      | 284                     | 6056    |
|          |              |              |                   |                           |                         |         |
|          | BACKGROUND   | 1420         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6056    | 32.4%      | 3.09              | 32.4%              | 3.09                      |
|         |            |                   |                    |                           |

|              |      |
|--------------|------|
| HIGH VOLTAGE | 1700 |
|--------------|------|

**GAS DECAY CALIBRATION WITH 100 cm2 PROBE**

| ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 6260   |                             | 3 HOURS                 | 6330   | 101.1%                      |
| 1 HOUR                  | 6290   | 100.5%                      | 3.5 HOURS               | 6250   | 99.8%                       |
| 1.5 HOURS               | 6190   | 98.9%                       | 4 HOURS                 | 6340   | 101.3%                      |
| 2 HOURS                 | 6300   | 100.6%                      | 4.5 HOURS               | 6060   | 96.8%                       |
| 2.5 HOURS               | 6310   | 100.8%                      | 5 HOURS                 | 6270   | 100.2%                      |

|               |   |
|---------------|---|
| CALIBRATED BY | Larry Smith   |
| SIGNATURE     |  |

|      |         |
|------|---------|
| DATE | 2-21-95 |
|------|---------|

|          |                                      |
|----------|--------------------------------------|
| COMMENTS | Calibrated with a Ludlum 43-68 Probe |
|----------|--------------------------------------|



|            |      |                  |    |       |          |
|------------|------|------------------|----|-------|----------|
| ESP-2 S/N: | 1595 | INSTRUMENT CODE: | 12 | DATE: | 12-19-94 |
|------------|------|------------------|----|-------|----------|

|               |      |
|---------------|------|
| ALPHA / BETA: | Beta |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 763/84   | 18699        | 31300        | 5                 | 6260                      | 244                     | 6016    |
| ---      | ---          | ---          | ---               | ---                       | ---                     | ---     |
|          | BACKGROUND   | 1220         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6016    | 32.2%      | 3.01              | 32.2%              | 3.01                      |
| ---     | ---        | ---               |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1700 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELASPED TIME (in hours) | COUNTS | PERCENT (of original count) | ELASPED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 6370   | @ 8.00 am                   | 3 HOURS                 | 6170   | 96.8%                       |
| 1 HOUR                  | 6350   | 99.7%                       | 3.5 HOURS               | 6160   | 96.7%                       |
| 1.5 HOURS               | 6180   | 97%                         | 4 HOURS                 | 6160   | 96.7%                       |
| 2 HOURS                 | 6230   | 97.8%                       | 4.5 HOURS               | 6260   | 98.3%                       |
| 2.5 HOURS               | 6220   | 97.6%                       | 5 HOURS                 | 6300   | 98.9%                       |

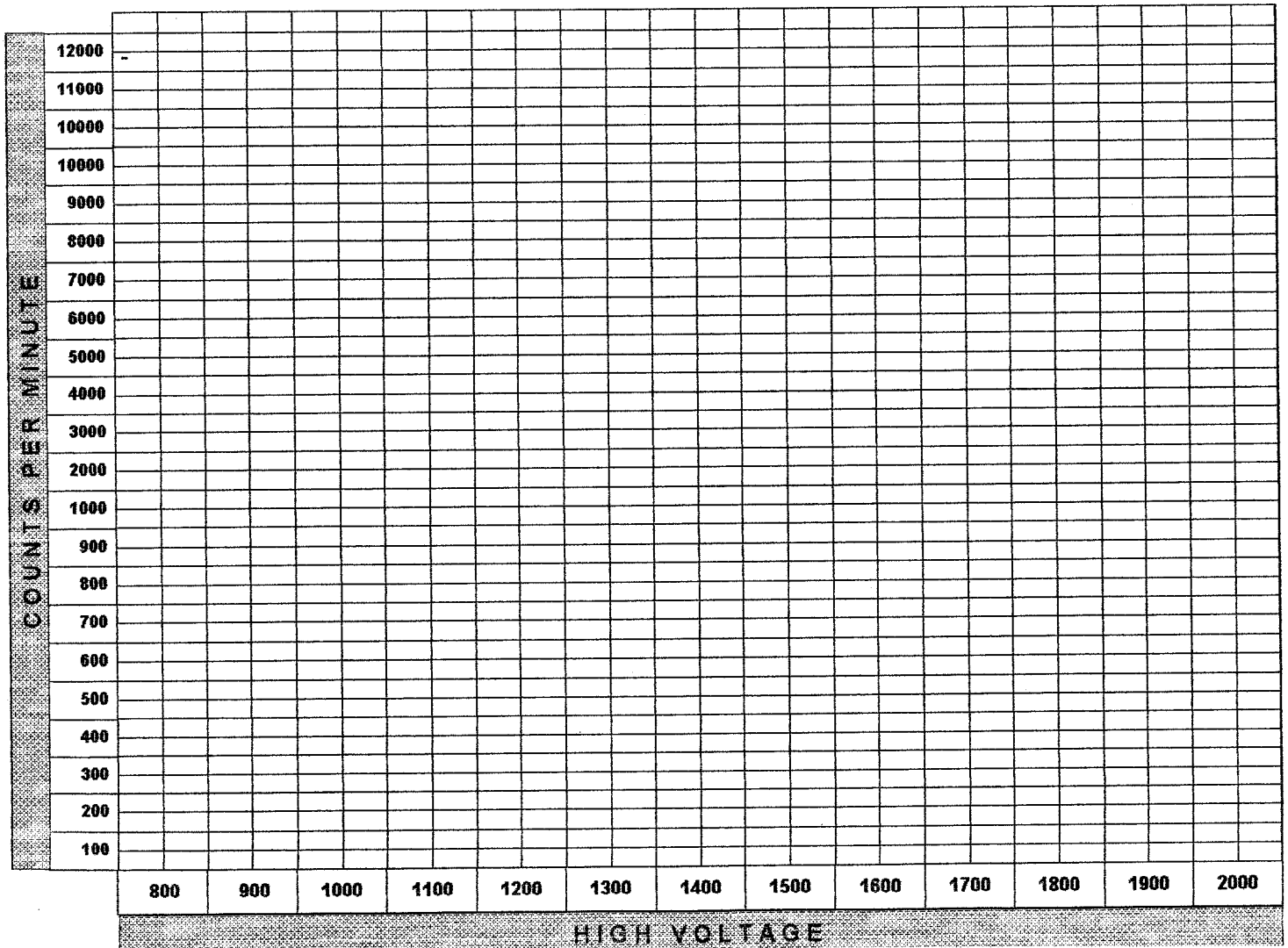
|                |                           |
|----------------|---------------------------|
| CALIBRATED BY: | C. Vergari / T. Brautigam |
| SIGNATURE      |                           |

|       |          |
|-------|----------|
| DATE: | 12-19-94 |
|-------|----------|

|           |                                      |
|-----------|--------------------------------------|
| COMMENTS: | Calibrated with Ludlum 44-3 detector |
|-----------|--------------------------------------|

|               |      |
|---------------|------|
| ALPHA / BETA: | Beta |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | ---    | 1250         | 10     | 1650         | 6160   |
| 900          | ---    | 1300         | 16     | 1700         | 6410   |
| 950          | ---    | 1350         | 119    | 1750         | 6340   |
| 1000         | ---    | 1400         | 962    | 1800         | 6390   |
| 1050         | ---    | 1450         | 1900   | 1850         | 19400  |
| 1100         | ---    | 1500         | 3030   | 1900         | ----   |
| 1150         | ---    | 1550         | 4330   | 1950         | ----   |
| 1200         | 11     | 1600         | 5890   | 2000         | ----   |



|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1595 | INSTRUMENT CODE: | 12 | DATE: | 9-29-94 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |                 |                 |                      |                              |                            |         |
|--|-----------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| SOURCE #   | ACTIVITY<br>dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
| 763/84   | 18,700          | 30,900          | 5                    | 6180                         | 220                        | 5960    |
|  |                 |                 |                      |                              |                            |         |
|  | BACKGROUND      | 1100            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 5960    | 31.8       | 3.14                 | 31.8               | 3.14                         |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm2 PROBE |        |                                |                            |        |                                |
|--|--------|--------------------------------|----------------------------|--------|--------------------------------|
| ELAPSED TIME<br>(in hours)               | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
| INITIAL                                  | 6290   | 100%                           | 3 HOURS                    | 6190   | 98.4%                          |
| 1 HOUR                                   | 6200   | 98.6%                          | 3.5 HOURS                  | 6200   | 98.6%                          |
| 1.5 HOURS                                | 6080   | 96.7%                          | 4 HOURS                    | 6110   | 97.1%                          |
| 2 HOURS                                  | 6290   | 100%                           | 4.5 HOURS                  | 6120   | 97.3%                          |
| 2.5 HOURS                                | 6240   | 99.2%                          | 5 HOURS                    | 6140   | 97.6%                          |

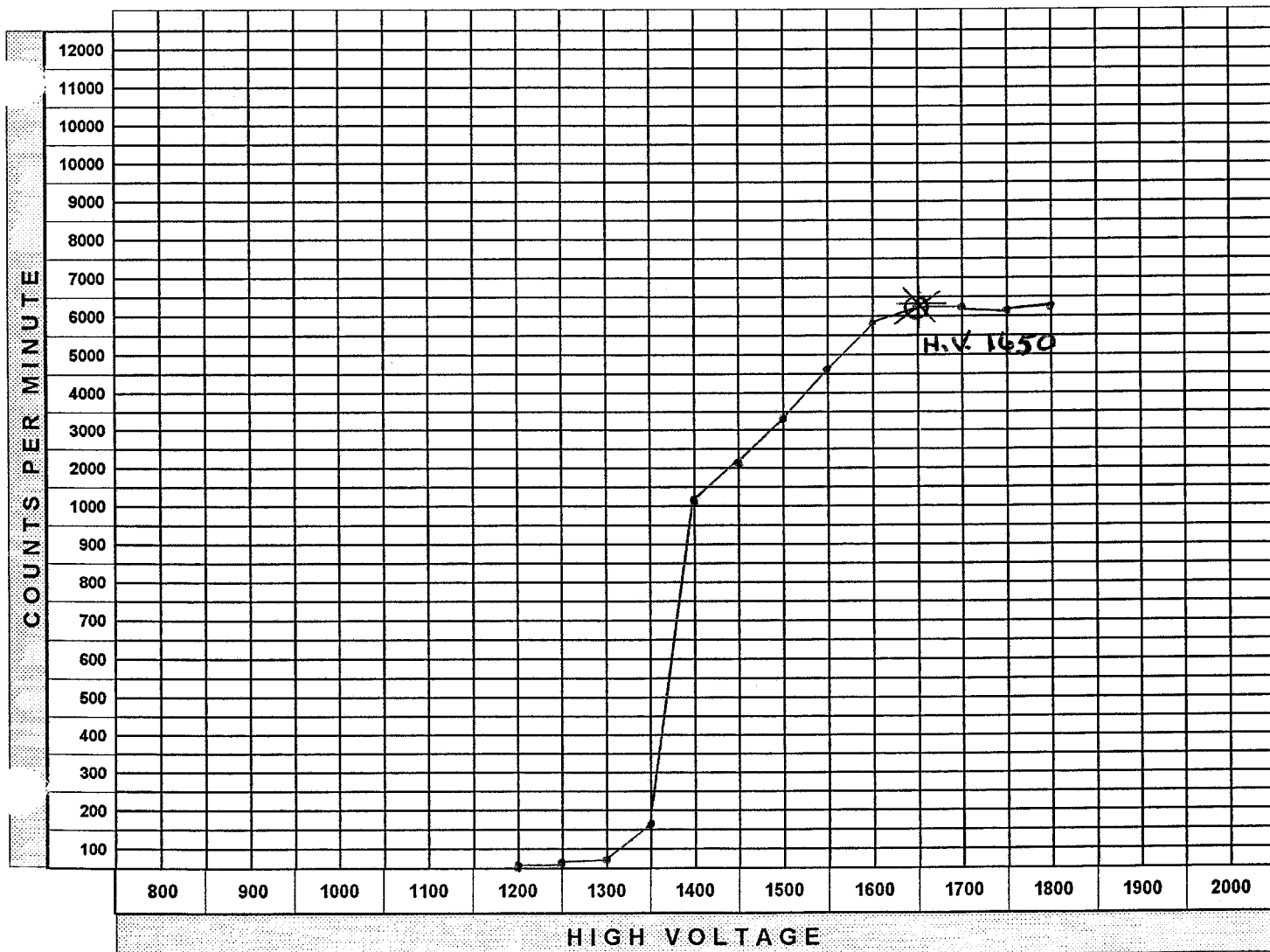
|                |                       |
|----------------|-----------------------|
| CALIBRATED BY: | C. Vergari            |
| SIGNATURE:     | <i>Carmen Vergari</i> |

|       |         |
|-------|---------|
| DATE: | 9-29-94 |
|-------|---------|

|           |                               |
|-----------|-------------------------------|
| COMMENTS: | Calibrated with Ludlum probe. |
|-----------|-------------------------------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -----  | 1250         | 9      | 1650         | 6230   |
| 900          | -----  | 1300         | 24     | 1700         | 6240   |
| 950          | -----  | 1350         | 162    | 1750         | 6190   |
| 1000         | -----  | 1400         | 1130   | 1800         | 6390   |
| 1050         | -----  | 1450         | 2050   | 1850         | 19700  |
| 1100         | -----  | 1500         | 3390   | 1900         | -----  |
| 1150         | -----  | 1550         | 4510   | 1950         | -----  |
| 1200         | 7      | 1600         | 5890   | 2000         | -----  |





|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1595 | INSTRUMENT CODE: | 12 | DATE: | 6/30/94 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

| SOURCE # | ACTIVITY<br>- dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 763/84   | 18699             | 31000           | 5                    | 6200                         | 228                        | 5972    |
|          | BACKGROUND        | 1140            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 5972    | 31.9%      | 3.14                 | 31.9%              | 3.14                         |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm<sup>2</sup> PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6390   | 100%                           | 3 HOURS                    | 6090   | 95%                            |
| 1 HOUR                     | 6180   | 97%                            | 3.5 HOURS                  | 6150   | 95                             |
| 1.5 HOURS                  | 6260   | 98%                            | 4 HOURS                    | 6110   | 96%                            |
| 2 HOURS                    | 6240   | 98%                            | 4.5 HOURS                  | 6080   | 95%                            |
| 2.5 HOURS                  | 6150   | 96%                            | 5 HOURS                    |        |                                |

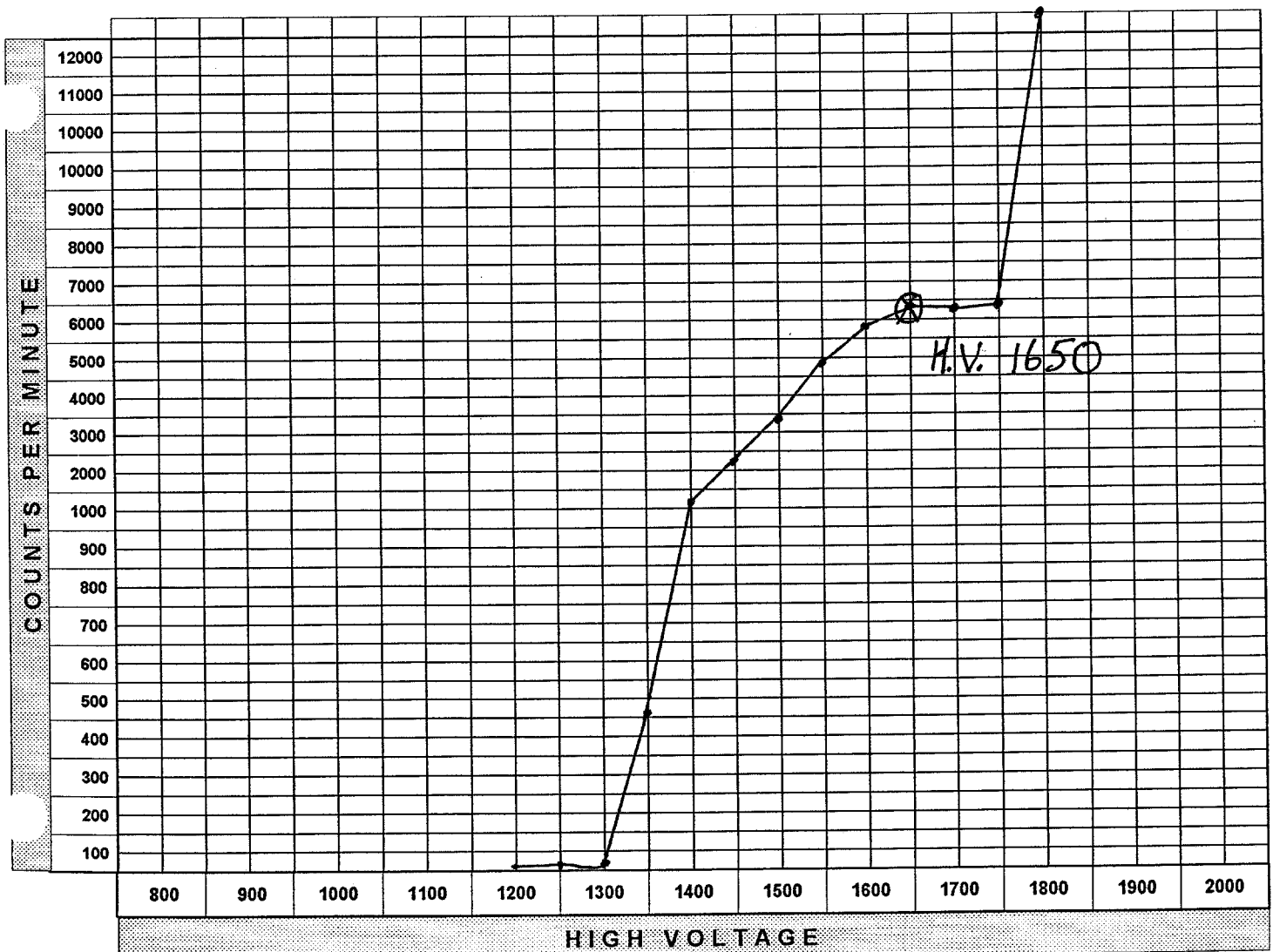
|                |                       |
|----------------|-----------------------|
| CALIBRATED BY: | Todd Brautigam        |
| SIGNATURE:     | <i>Todd Brautigam</i> |

|       |         |
|-------|---------|
| DATE: | 6/30/94 |
|-------|---------|

COMMENTS: Calibrated with Ludlum 43-68 probe

ALPHA / BETA: BETA

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 14     | 1650         | 6350   |
| 900          | -      | 1300         | 22     | 1700         | 6200   |
| 950          | -      | 1350         | 457    | 1750         | 6390   |
| 1000         | -      | 1400         | 1180   | 1800         | 14800  |
| 1050         | -      | 1450         | 2270   | 1850         | -      |
| 1100         | -      | 1500         | 3480   | 1900         | -      |
| 1150         | -      | 1550         | 4930   | 1950         | -      |
| 1200         | 12     | 1600         | 5860   | 2000         | -      |



|            |      |                  |    |       |        |
|------------|------|------------------|----|-------|--------|
| ESP-2 S/N: | 1595 | INSTRUMENT CODE: | 12 | DATE: | 4/4/94 |
|------------|------|------------------|----|-------|--------|

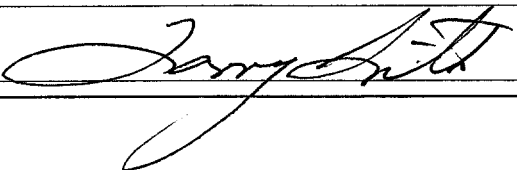
|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |                   |                 |                      |                              |                            |         |
|--|-------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| SOURCE #   | ACTIVITY<br>- dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
| 763-84   | 18700             | 34300           | 5                    | 6860                         | 282                        | 6578    |
|  |                   |                 |                      |                              |                            |         |
|  | BACKGROUND        | 1410            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6578    | 35.2%      | 2.84                 | 35.2%              | 2.84                         |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1800 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm <sup>2</sup> PROBE |        |                                |                            |        |                                |
|--|--------|--------------------------------|----------------------------|--------|--------------------------------|
| ELAPSED TIME<br>(in hours)                           | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
| INITIAL  | 6870   | INITIAL                        | 3 HOURS                    | 6870   | 100                            |
| 1 HOUR   | 6890   | 100.3                          | 3.5 HOURS                  | 6830   | 99.4                           |
| 1.5 HOURS  | 6870   | 100                            | 4 HOURS                    | 6870   | 100                            |
| 2 HOURS  | 6840   | 99.6                           | 4.5 HOURS                  |        |                                |
| 2.5 HOURS  | 6790   | 98.8                           | 5 HOURS                    |        |                                |

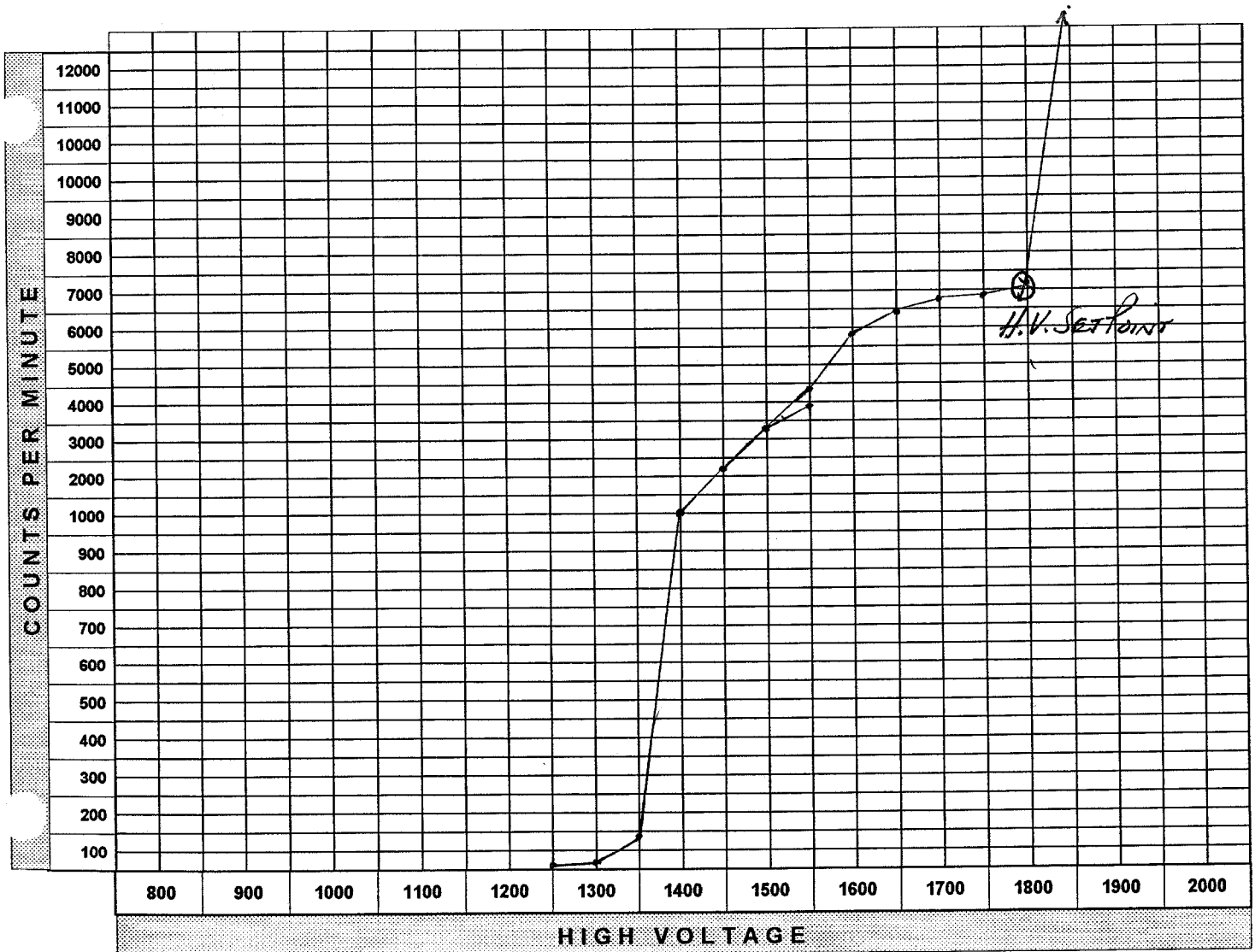
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |        |
|-------|--------|
| DATE: | 4/4/94 |
|-------|--------|

|           |  |
|-----------|--|
| COMMENTS: |  |
|-----------|--|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | ---    | 1250         | 3      | 1650         | 6460   |
| 900          | ---    | 1300         | 18     | 1700         | 6740   |
| 950          | ---    | 1350         | 145    | 1750         | 6870   |
| 1000         | ---    | 1400         | 1000   | 1800         | 6860   |
| 1050         | ---    | 1450         | 2160   | 1850         | 6780   |
| 1100         | ---    | 1500         | 3310   | 1900         | 7130   |
| 1150         | ---    | 1550         | 4400   | 1950         | 13600  |
| 1200         | ---    | 1600         | 5860   | 2000         | ---    |



|            |      |                  |    |       |        |
|------------|------|------------------|----|-------|--------|
| ESP-2 S/N: | 1595 | INSTRUMENT CODE: | 12 | DATE: | 1-3-94 |
|------------|------|------------------|----|-------|--------|

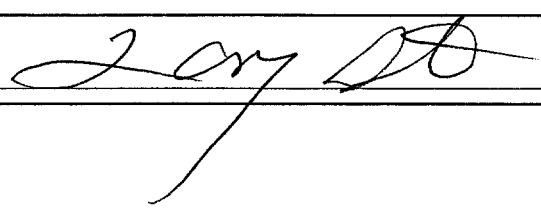
|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |                   |                 |                      |                              |                            |         |
|--|-------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| SOURCE #   | ACTIVITY<br>- dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
| 763-84   | 18700             | 34100           | 5                    | 6820                         | 279                        | 6541    |
|  |                   |                 |                      |                              |                            |         |
|  | BACKGROUND        | 1350            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6541    | 34.9%      | 2.87                 | 34.9%              | 2.87                         |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1800 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm2 PROBE |        |                                |                            |        |                                |
|--|--------|--------------------------------|----------------------------|--------|--------------------------------|
| ELAPSED TIME<br>(in hours)               | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
| INITIAL                                  | 6820   | 100%                           | 3 HOURS                    | 6730   | 98.7%                          |
| 1 HOUR                                   | 6770   | 98.2%                          | 3.5 HOURS                  | 6780   | 99.4%                          |
| 1.5 HOURS                                | 6710   | 98.3%                          | 4 HOURS                    | 6830   | 100.1%                         |
| 2 HOURS                                  | 6690   | 98%                            | 4.5 HOURS                  | 6810   | 99.8%                          |
| 2.5 HOURS                                | 6670   | 97.8%                          | 5 HOURS                    | 6720   | 98.5%                          |

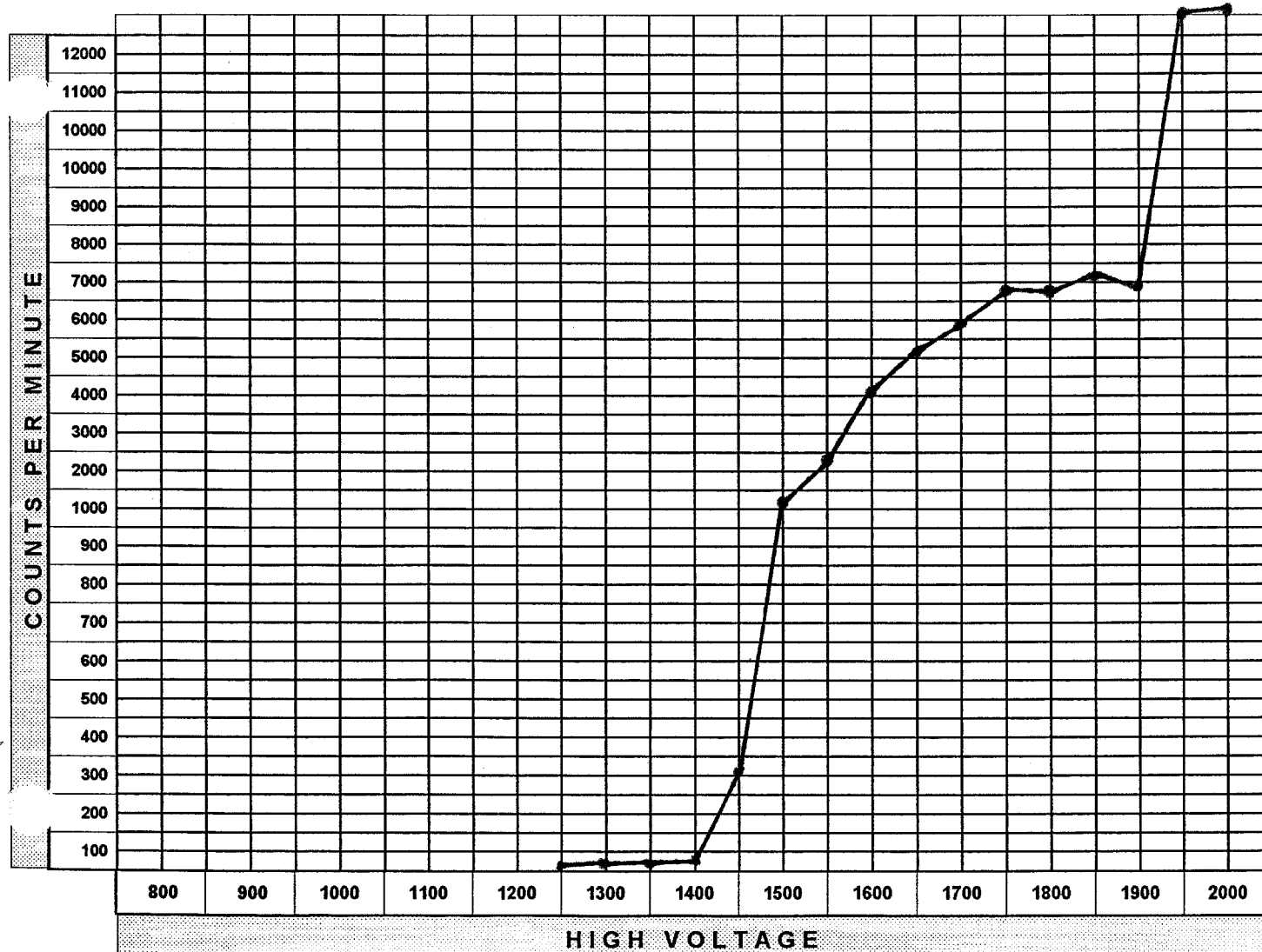
|                |   |
|----------------|---|
| CALIBRATED BY: | M. Shaffer / L. Smith   |
| SIGNATURE:     |  |

|       |        |
|-------|--------|
| DATE: | 1-3-94 |
|-------|--------|

|           |  |
|-----------|--|
| COMMENTS: |  |
|-----------|--|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | ---    | 1250         | 4      | 1650         | 5040   |
| 900          | ---    | 1300         | 6      | 1700         | 5970   |
| 950          | ---    | 1350         | 8      | 1750         | 6690   |
| 1000         | ---    | 1400         | 30     | 1800         | 6750   |
| 1050         | ---    | 1450         | 301    | 1850         | 7040   |
| 1100         | ---    | 1500         | 1170   | 1900         | 6920   |
| 1150         | ---    | 1550         | 2390   | 1950         | 13600  |
| 1200         | ---    | 1600         | 4010   | 2000         | 14300  |



|                 |            |               |
|-----------------|------------|---------------|
| ESP-2 S/N: 1595 | CODE #: 12 | DATE: 8/18/93 |
|-----------------|------------|---------------|

PLATEAU DATA

| ALPHA |     |      |     | BETA |      |      |       |
|-------|-----|------|-----|------|------|------|-------|
| HV    | CTS | HV   | CTS | HV   | CTS  | HV   | CTS   |
| 850   |     | 1250 |     | 1150 | 0    | 1550 | 4390  |
| 900   |     | 1300 |     | 1200 | 0    | 1600 | 5670  |
| 950   |     | 1350 |     | 1250 | 6    | 1650 | 6170  |
| 1000  |     | 1400 |     | 1300 | 6    | 1700 | 6220  |
| 1050  |     | 1450 |     | 1350 | 202  | 1750 | 6210  |
| 1100  |     | 1500 |     | 1400 | 800  | 1800 | 6410  |
| 1150  |     | 1550 |     | 1450 | 1770 | 1850 | 12800 |
| 1200  |     | 1600 |     | 1500 | 2960 | 1900 | 14300 |

PLATEAU PLOT



| ESP-2 S/N: 1595   |            | CODE #: 12 |             | DATE: 8/18/93              |              |         |
|---|------------|------------|-------------|----------------------------|--------------|---------|
| ALPHA EFFICIENCY DATA (Net cpm / dpm = Eff) (Correction Factor = 1 / Eff) |            |            |             |                            |              |         |
| SOURCE #  | ACTIVITY   | TOTAL CTS  | TIME        | GROSS CPM                  | BKG. CPM     | NET CPM |
|   | dpm        |            | min         |                            |              |         |
|   | dpm        |            | min         |                            |              |         |
| NET CPM   | EFF        | C.F.       | AVERAGE EFF |                            | AVERAGE C.F. |         |
|   |            |            |             |                            |              |         |
|   |            |            |             |                            |              |         |
| BETA EFFICIENCY DATA (Net cpm / dpm = Eff) (Correction Factor = 1 / Eff)  |            |            |             |                            |              |         |
| SOURCE #  | ACTIVITY   | TOTAL CTS  | TIME        | GROSS CPM                  | BKG. CPM     | NET CPM |
| 763-84  | 18699 dpm  | 31800      | 5 min       | 6360                       | 252          | 6108    |
| 764-84  | 145996 dpm | 248000     | 5 min       | 49600                      | 252          | 49348   |
| NET CPM   | EFF        | C.F.       | AVERAGE EFF |                            | AVERAGE C.F. |         |
| 6108  | 32%        | 3.1        | 32.5%       |                            | 3.1          |         |
| 49348   | 33%        | 3.0        |             |                            |              |         |
| GAS DECAY CALIBRATION   |            |            |             |                            |              |         |
| TIME  | CPM        | PERCENT    | TIME        | CPM                        | PERCENT      |         |
| INITIAL   | 6200       | 100.0%     | 3.0 HOURS   | 6030                       | 97.2%        |         |
| 1.0 HOUR  | 6190       | 99.8%      | 3.5 HOURS   | 6210                       | 100.1%       |         |
| 1.5 HOURS   | 6120       | 98.7%      | 4.0 HOURS   | 6070                       | 97.9%        |         |
| 2.0 HOURS   | 6190       | 99.8%      | 4.5 HOURS   |                            |              |         |
| 2.5 HOURS   | 6110       | 98.5%      | 5.0 HOURS   |                            |              |         |
| DETECTOR DATA   |            |            |             |                            |              |         |
| ALPHA - HP 100A DETECTOR  |            |            |             | BETA - HP 100A DETECTOR    |              |         |
| HIGH VOLTAGE SETTING:   |            |            |             | HIGH VOLTAGE SETTING: 1700 |              |         |
| CC:   |            |            |             | CC: 1.00 E+00              |              |         |
| DT:   |            |            |             | DT: 1.00 E-06              |              |         |
| ALARM:  |            |            |             | ALARM: 1.00 E+06           |              |         |

CALIBRATED BY: M.Shaffer / L.Smith SIGNATURE: *M. Shaffer*



ESP-2 S/N: #1595

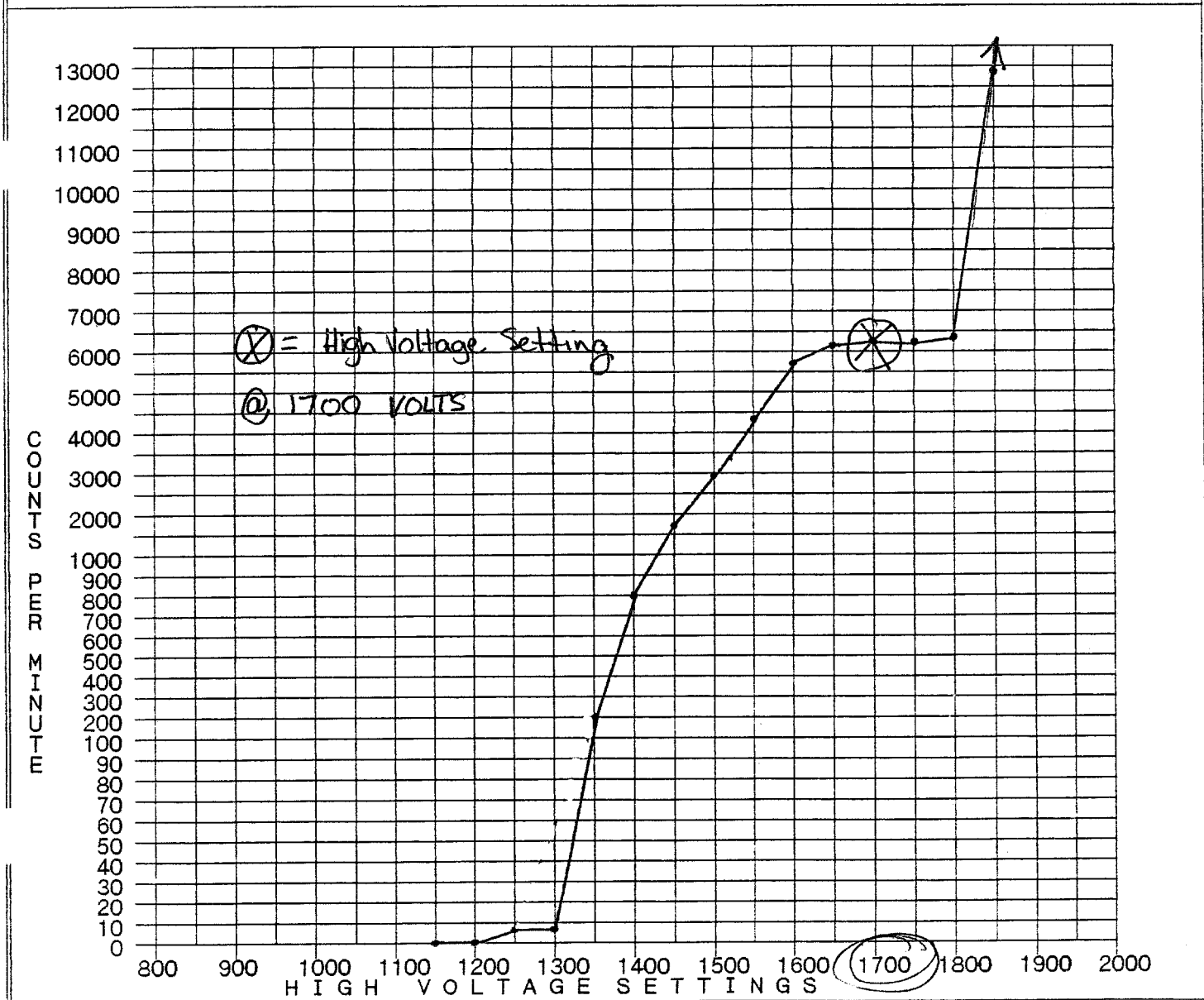
TAB #: 0002

DATE: Aug 18, 1993.

PLATEAU DATA

| ALPHA |     |      |     | BETA |      |      |        |
|-------|-----|------|-----|------|------|------|--------|
| HV    | CTS | HV   | CTS | HV   | CTS  | HV   | CTS    |
| 850   |     | 1250 |     | 1150 | 0    | 1550 | 4390   |
| 900   |     | 1300 |     | 1200 | 0    | 1600 | 5670   |
| 950   |     | 1350 |     | 1250 | 6    | 1650 | 6170   |
| 1000  |     | 1400 |     | 1300 | 6    | 1700 | 6220   |
| 1050  |     | 1450 |     | 1350 | 202  | 1750 | 6210   |
| 1100  |     | 1500 |     | 1400 | 800  | 1800 | 6410   |
| 1150  |     | 1550 |     | 1450 | 1770 | 1850 | 12,800 |
| 1200  |     | 1600 |     | 1500 | 2960 | 1900 | 14,300 |

PLATEAU PLOT



ESP-2 S/N: #1595      LAB #: 00012      DATE: Aug 18, 1993

ALPHA EFFICIENCY DATA (Net cpm / dpm = Eff)(Correction Factor = 1 / Eff)

| SOURCE # | ACTIVITY | TOTAL CTS | TIME        | GROSS CPM | BKG. CPM     | NET CPM |
|----------|----------|-----------|-------------|-----------|--------------|---------|
|          | dpm      |           | min         |           |              |         |
|          | dpm      |           | min         |           |              |         |
| NET CPM  | EFF      | C.F.      | AVERAGE EFF |           | AVERAGE C.F. |         |
|          |          |           |             |           |              |         |

BETA EFFICIENCY DATA (Net cpm / dpm = Eff)(Correction Factor = 1 / Eff)

| SOURCE # | ACTIVITY    | TOTAL CTS | TIME        | GROSS CPM | BKG. CPM     | NET CPM |
|----------|-------------|-----------|-------------|-----------|--------------|---------|
| 763-84   | 18,699 dpm  | 31,800    | 5 min       | 6360      | 252          | 6108    |
| 764-84   | 145,996 dpm | 248,000   | 5 min       | 49,600    | 252          | 49,348  |
| NET CPM  | EFF         | C.F.      | AVERAGE EFF |           | AVERAGE C.F. |         |
| 6108     | 32%         | 3.1       | 32.5%       |           | 3.1          |         |
| 49,348   | 33%         | 3.0       |             |           |              |         |

GAS DECAY CALIBRATION


| TIME      | CPM  | PERCENT    | TIME      | CPM  | PERCENT |
|-----------|------|------------|-----------|------|---------|
| INITIAL   | 6200 | @1200 100% | 3.0 HOURS | 6030 | 97.2%   |
| 1.0 HOUR  | 6190 | 99.8%      | 3.5 HOURS | 6210 | 100.1%  |
| 1.5 HOURS | 6120 | 98.7%      | 4.0 HOURS | 6070 | 97.9%   |
| 2.0 HOURS | 6190 | 99.8%      | 4.5 HOURS |      |         |
| 2.5 HOURS | 6110 | 98.5%      | 5.0 HOURS |      |         |

DETECTOR DATA

| ALPHA - HP 100A DETECTOR | BETA - HP 100A DETECTOR    |
|--------------------------|----------------------------|
| HIGH VOLTAGE SETTING:    | HIGH VOLTAGE SETTING: 1700 |
| CC:                      | CC: 1.00E0                 |
| DT:                      | DT: 1.00E-6                |
| ALARM:                   | ALARM: 1.00E6              |

CALIBRATED BY: M. Shaffer  
L. Smith

SIGNATURE: M. Shaffer

L. SMITH  Applied HEALTH PHYSICS inc.

REC'D  
8-16-93  
UPS

AUG 16 1993 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|   |                                |
|---|--------------------------------|
| SHIPPING ADDRESS                                | BILLING ADDRESS (if Different) |
| W. E. C.<br>Ave. A & West St.<br>Pgh., PA 15112 | SAME                           |

CONTACT: L. Smith PHONE: (412) 835-3674 DATE: 7/11/93 P.O.# MA293285

Receiving Comments: Calibration, Repair (Return) Warranty - Same Problem, High Background

Instrument Received:  Within Toler.  $\pm 10\%$    $\pm 10-20\%$   Out Toler.  Requires Repair

Mfg. Inst. Eberline Model # ESP-2 Serial # 1595  
Detector N/A Model #          Serial #         

CALIBRATION  REPAIR  SALE  LOAN By: J. Douglas

| scale     | source       | reading | scale     | source       | reading | scale | source       | reading |
|-----------|--------------|---------|-----------|--------------|---------|-------|--------------|---------|
|           | mR/hr<br>cpm | cpm     |           | mR/hr<br>cpm | cpm     |       | mR/hr<br>cpm | cpm     |
|           | 100          | 100     |           | 400          | 3990    |       | 100000       | 100000  |
| <u>on</u> | 400          | 400     | <u>on</u> | 1000         | 9990    |       | 400000       | 401000  |
|           | 1000         | 997     |           | 40000        | 39900   |       |              |         |

Calibration Source:  GAMMA  ALPHA  BETA  ELECTRONIC  OTHER

Description:  ra-226  cs-137  pu-239  sr-90  mp-1 (500)

|                                   |  |
|-----------------------------------|--|
| RESPONSE GRAPH <u>N/A</u>         | PROBE EFFICIENCIES <u>N/A</u>                  |
|                                   | Alpha <u>        </u> % Beta <u>        </u> % |
|                                   | Check Source Reading <u>N/A</u>                |
|                                   | Battery Check Reading <u>N/A</u>               |
|                                   | Detector Angle <u>N/A</u>                      |
|                                   | Corrections <u>N/A</u> $\pm 10\%$ Electronic   |
| TEMP/HUMIDITY <u>71.9°F / 43%</u> |  |

Maintenance & Comments E100 Repaired PROBE/R/TIMP CRYS /HV-Section, HV OK @ 1700, PC OK @ 1.00, DT OK @ 1.00-06, IS @ 2 mVolts

|   |                 |           |                     |
|---|-----------------|-----------|---------------------|
| <u>Tested, Inspected &amp; Calibrated</u>   |                 |           |                     |
| CALIBRATION                                 | Contract        | No Charge | 40.00               |
| LABOR                                       |                 | 11        |                     |
| MATERIALS                                   | CREDIT          | 5-86-93   | -69.00              |
| &   | E100/AHV        | Charge    | +191.40             |
| SALES                                       |                 |           | = 122.40            |
| SHIPPING                                    | UPS             |           |                     |
| QA Dept.                                    | <u>        </u> | Warranty  | <u>E100 90 DAYS</u> |
| Shipping                                    | <u>        </u> | Date      | <u>7/12/93</u>      |
| Pick-Up                                     | <u>        </u> | Date      | <u>        </u>     |
| This Certificate Expires In <u>3</u> Months |                 |           |                     |
| Re-Calibrate On Or Before <u>11/11/93</u>   |                 |           |                     |
| Job ID # <u>52300</u>                       |                 |           |                     |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.

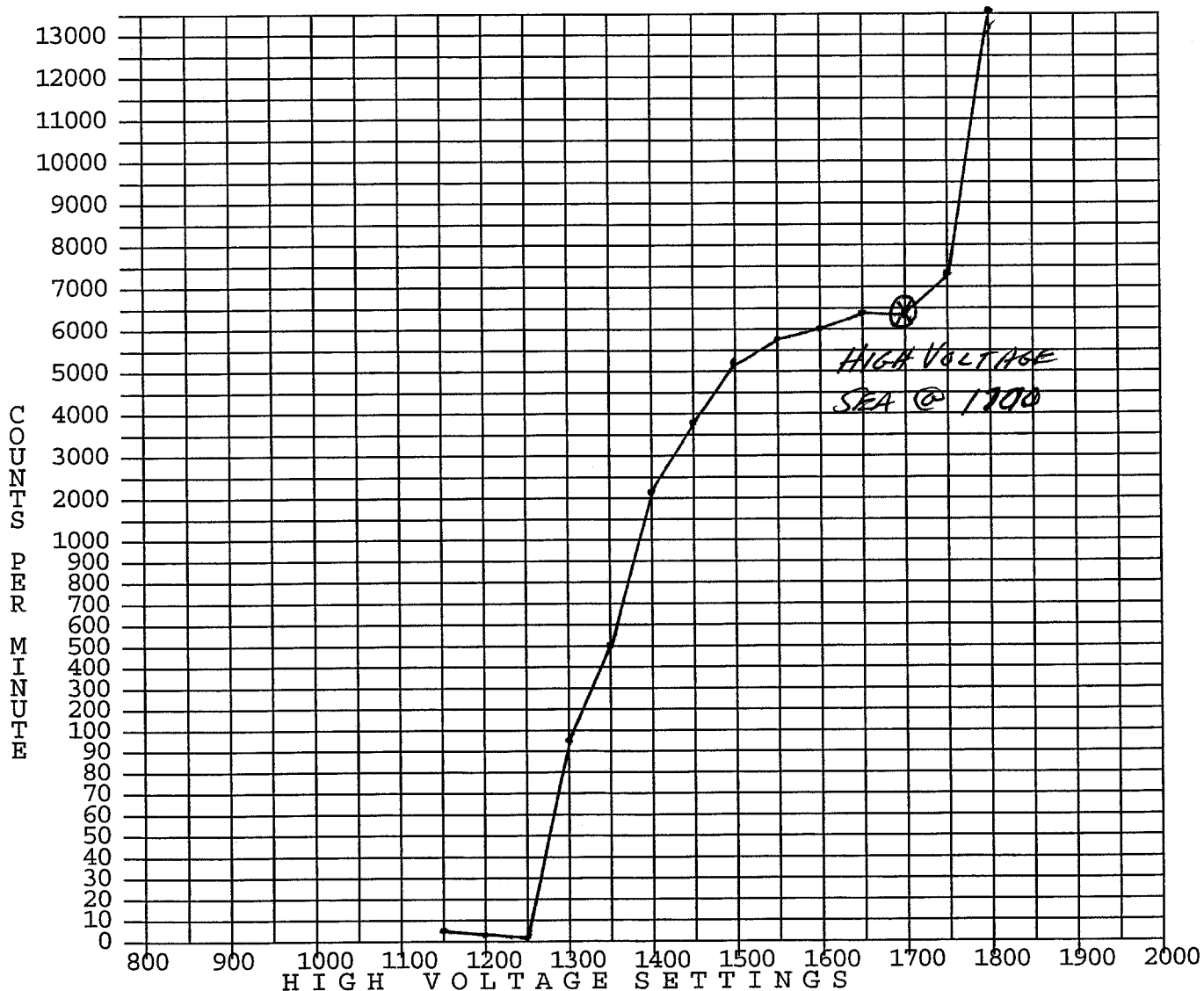
22

|                 |                            |              |
|-----------------|----------------------------|--------------|
| ESP-2 S/N: 1595 | TAB #: 10 <i>Code # 12</i> | DATE: 6/1/93 |
|-----------------|----------------------------|--------------|

PLATEAU DATA

| ALPHA |     |      |     | BETA |      |      |       |
|-------|-----|------|-----|------|------|------|-------|
| HV    | CTS | HV   | CTS | HV   | CTS  | HV   | CTS   |
| 850   |     | 1250 |     | 1150 | 5    | 1550 | 5270  |
| 900   |     | 1300 |     | 1200 | 3    | 1600 | 5870  |
| 950   |     | 1350 |     | 1250 | 2    | 1650 | 6030  |
| 1000  | →   | 1400 |     | 1300 | 94   | 1700 | 6450  |
| 1050  |     | 1450 |     | 1350 | 508  | 1750 | 6330  |
| 1100  |     | 1500 |     | 1400 | 1600 | 1800 | 7300  |
| 1150  |     | 1550 |     | 1450 | 1560 | 1850 | 13600 |
| 1200  |     | 1600 |     | 1500 | 3810 | 1900 |       |

PLATEAU PLOT



|                 |   |              |
|-----------------|---|--------------|
| ESP-2 S/N: 1595 | TAB # <del>10</del> <sup>7A</sup> COOE # 12 | DATE: 6/1/93 |
|-----------------|---|--------------|

ALPHA EFFICIENCY DATA (Net cpm / dpm = Eff)(Coorection Factor = 1 / Eff)

| SOURCE # | ACTIVITY | TOTAL CTS | TIME        | GROSS CPM | BKG. CPM     | NET CPM |
|----------|----------|-----------|-------------|-----------|--------------|---------|
|          | dpm      |           | min         |           |              |         |
|          | dpm      |           | min         |           |              |         |
| NET CPM  | EFF      | C.F.      | AVERAGE EFF |           | AVERAGE C.F. |         |
|          |          |           |             |           |              |         |
|          |          |           |             |           |              |         |

BETA EFFICIENCY DATA

| SOURCE # | ACTIVITY   | TOTAL CTS | TIME        | GROSS CPM | BKG. CPM     | NET CPM |
|----------|------------|-----------|-------------|-----------|--------------|---------|
| 763/84   | 18700 dpm  | 31600     | 5 min       | 6320      | 354          | 5966    |
| 764/84   | 146000 dpm | 146000    | 5 min       | 49200     | 354          | 48846   |
| NET CPM  | EFF        | C.F.      | AVERAGE EFF |           | AVERAGE C.F. |         |
| 5966     | 31.9%      | 3.13      | 32.7%       |           | 3.06         |         |
| 48846    | 33.5%      | 2.98      |             |           |              |         |

GAS DECAY CALIBRATION

| TIME      | CPM  | PERCENT | TIME      | CPM  | PERCENT |
|-----------|------|---------|-----------|------|---------|
| INITIAL   | 6260 | 100.0%  | 3.0 HOURS | 6300 | 100.6%  |
| 1.0 HOUR  | 6240 | 99.7%   | 3.5 HOURS | 6250 | 99.8%   |
| 1.5 HOURS | 6380 | 101.9%  | 4.0 HOURS | 6290 | 100.4%  |
| 2.0 HOURS | 6330 | 101.1%  | 4.5 HOURS | 6330 | 101.1%  |
| 2.5 HOURS | 6280 | 100.3%  | 5.0 HOURS | 6300 | 100.6%  |

DETECTOR DATA

| ALPHA - HP 100A DETECTOR | BETA - HP 100A DETECTOR    |
|--------------------------|----------------------------|
| HIGH VOLTAGE SETTING:    | HIGH VOLTAGE SETTING: 1700 |
| CC:                      | CC: 1.00 E+00              |
| DT:                      | DT: 1.00 E-06              |
| ALARM:                   | ALARM: Not set             |

CALIBRATED BY: Larry Smith

SIGNATURE: 



HEALTH PHYSICS inc.

2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|   |        |  |           |                                |         |  |        |  |  |  |  |
|---|--------|--|-----------|--------------------------------|---------|--|--------|--|--|--|--|
| SHIPPING ADDRESS  |        |  |           | BILLING ADDRESS (If Different) |         |  |        |  |  |  |  |
| WEC<br>211 Rte. 51 South<br>Lodge, PA 15025   |        |  |           | JME                            |         |  |        |  |  |  |  |
| CONTACT: <u>Larry Smith</u> PHONE: (—) <u>382-7553</u> DATE: <u>5/26/93</u> P.O.# <u>MA89302</u>  |        |  |           |                                |         |  |        |  |  |  |  |
| Receiving Comments: <u>High Background - Bad Configuration.</u>   |        |  |           |                                |         |  |        |  |  |  |  |
| Instrument Received:  |        | Within Toler. $\pm 10\%$                   |           | $\pm 10-20\%$                  |         | Out Toler. <input checked="" type="checkbox"/> Requires Repair |        |  |  |  |  |
| Mfg. Inst. <u>Eberline</u>  |        | Model # <u>FSP-2</u>                       |           | Serial # <u>1595</u>           |         |  |        |  |  |  |  |
| Detector <u>N/A</u>   |        | Model # <u>—</u>                           |           | Serial # <u>—</u>              |         |  |        |  |  |  |  |
| <input checked="" type="checkbox"/> CALIBRATION   |        | <input checked="" type="checkbox"/> REPAIR |           | SALE                           |         | LOAN By: <u>J. Gaudas</u>                                      |        |  |  |  |  |
| scale   | source | reading                                    | scale     | source                         | reading | scale  | source | reading  |  |  |  |
|   | mR/hr  | cpm  |           | mR/hr                          | cpm     |  | mR/hr  |  |  |  |  |
| <u>ON</u>   | 100    | 100  | <u>ON</u> | 1000                           | 9970    |  |        |  |  |  |  |
|   | 400    | 400  |           | 4000                           | 39400   |  |        |  |  |  |  |
|   | 1000   | 982  |           | 10000                          | 99100   |  |        |  |  |  |  |
|   | 4000   | 4000                                       |           | 40000                          | 402000  |  |        |  |  |  |  |
| Calibration Source:   |        | GAMMA                                      |           | ALPHA                          |         | BETA   |        | <input checked="" type="checkbox"/> ELECTRONIC |  | OTHER  |  |
| Description:  |        | ra-226                                     |           | cs-137                         |         | pu-239   |        | sr-90  |  | <input checked="" type="checkbox"/> mp-1/500 |  |
| RESPONSE GRAPH <u>N/A</u>   |        |  |           |                                |         | PROBE EFFICIENCIES <u>N/A</u>                                  |        |  |  |  |  |
| Alpha _____ %   |        |  |           |                                |         | Beta _____ %   |        |  |  |  |  |
| Check Source Reading _____  |        |  |           |                                |         | <u>N/A</u>   |        |  |  |  |  |
| Battery Check Reading _____   |        |  |           |                                |         | <u>N/A</u>   |        |  |  |  |  |
| Detector Angle _____  |        |  |           |                                |         | <u>N/A</u>   |        |  |  |  |  |
| TEMP/HUMIDITY <u>72.4 °F / 49 %</u>   |        |  |           |                                |         | Corrections <u>N/A <math>\pm 10\%</math> Electronic</u>        |        |  |  |  |  |
| Maintenance & Comments <u>Restored @ C-Cells, Initialized Processor, cleaned &amp; Re-Sealed. Froyed High Voltage lead. Installed parameters for 3-Detectors, IS = 1-2 mV</u> |        |  |           |                                |         |  |        |  |  |  |  |
| <u>Tested, Inspected &amp; Calibrated</u>   |        |  |           |                                |         |  |        |  |  |  |  |
| CALIBRATION   |        | <u>Contract</u>                            |           | 40.00                          |         | QA Dept. <u>JMS</u>  |        | Warranty <u>90 DAYS</u>                        |  |  |  |
| LABOR   |        | <u>(1/2) HR</u>                            |           | 40.00/HR                       |         | 20.00  |        | Shipping <u>UPS</u>                            |  | Date <u>5/27/93</u>                          |  |
| MATERIALS   |        | <u>10 C-Cells</u>                          |           | 1.50 ea.                       |         | 9.00   |        | Pick-Up _____                                  |  | Date <u>—</u>                                |  |
| &   |        |  |           |                                |         |  |        | This Certificate Expires In <u>3</u> Months    |  |  |  |
| SALES   |        |  |           |                                |         |  |        | Re-Calibrate On Or Before <u>8/26/93</u>       |  |  |  |
| SHIPPING  |        | <u>UPS</u>                                 |           | <u>10 Unit</u>                 |         | <u>5.72</u>  |        | Job ID # <u>52021</u>                          |  |  |  |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.

**CODE NUMBER 13**

**REPORT #001**

|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 8/18/98 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

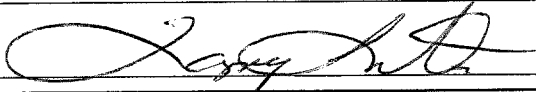
| SOURCE # | ACTIVITY<br>-dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 763/84   | 18699            | 31400           | 5                    | 6280                         | 190                        | 6090    |
|          |                  |                 |                      |                              |                            |         |
|          | BACKGROUND       | 951             | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6090    | 32.6%      | 3.1                  | 32.6%              | 3.1                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6390   |                                | 3 HOURS                    | 6120   | 95.8%                          |
| 1 HOUR                     | 6150   | 96.2%                          | 3.5 HOURS                  | 6100   | 95.5%                          |
| 1.5 HOURS                  | 6200   | 97%                            | 4 HOURS                    | 6050   | 94.7%                          |
| 2 HOURS                    | 6290   | 98.4%                          | 4.5 HOURS                  | 6070   | 94.9%                          |
| 2.5 HOURS                  | 6260   | 98%                            | 5 HOURS                    | 6040   | 94.5%                          |

|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

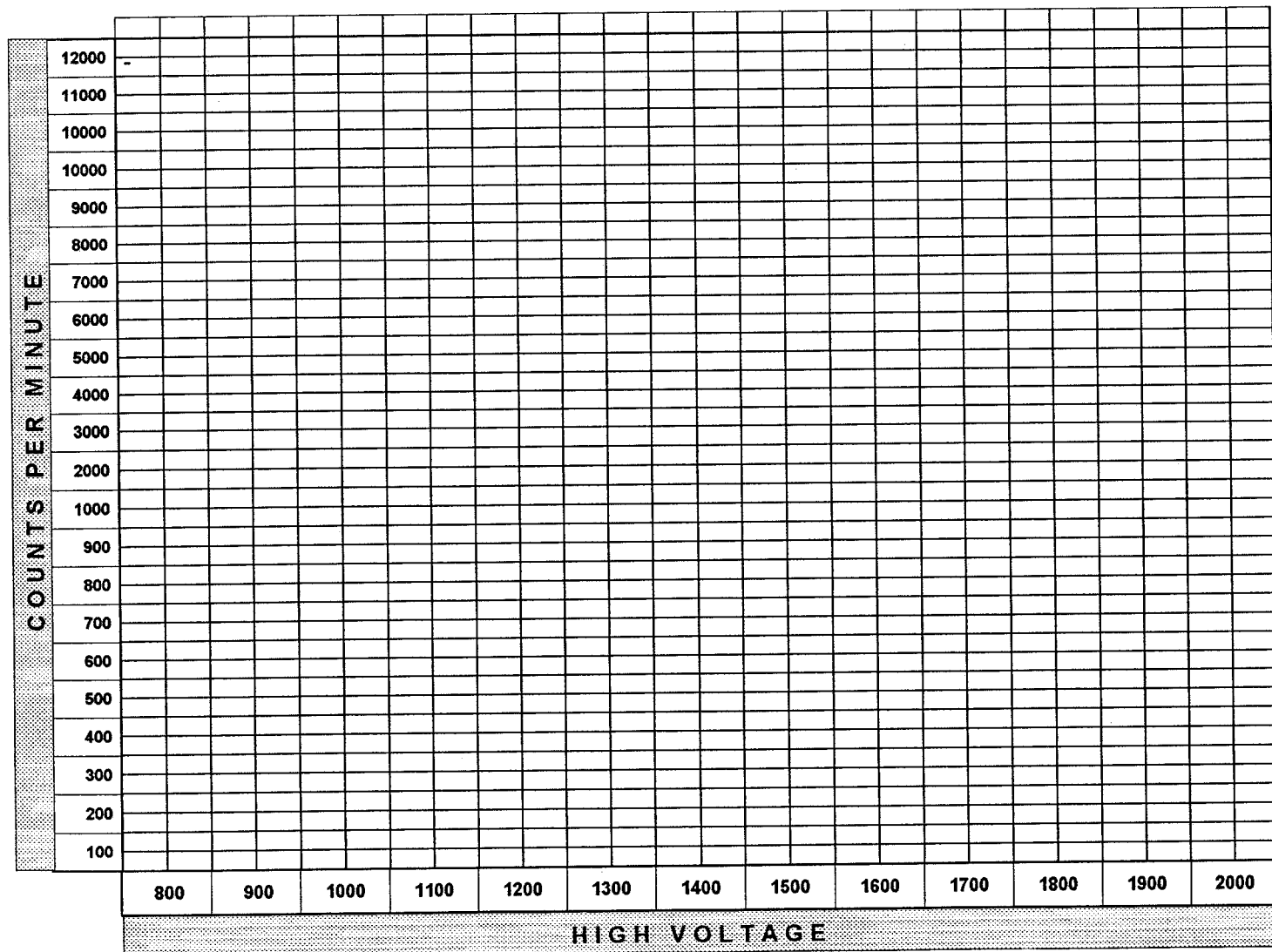
|       |         |
|-------|---------|
| DATE: | 8/18/98 |
|-------|---------|

|           |                                    |
|-----------|------------------------------------|
| COMMENTS: | Calibrated with Ludlum 43-68 probe |
|-----------|------------------------------------|



|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 9      | 1650         | 6220   |
| 900          | -      | 1300         | 4      | 1700         | 6700   |
| 950          | -      | 1350         | 56     | 1750         | 6670   |
| 1000         | -      | 1400         | 714    | 1800         | 6750   |
| 1050         | -      | 1450         | 1700   | 1850         | -      |
| 1100         | -      | 1500         | 2790   | 1900         | -      |
| 1150         | -      | 1550         | 4040   | 1950         | -      |
| 1200         | 3      | 1600         | 5720   | 2000         | -      |



|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 5/11/98 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |                 |                 |                      |                              |                            |         |
|--|-----------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| SOURCE #   | ACTIVITY<br>dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
| 763/84   | 18699           | 31600           | 5                    | 6320                         | 224                        | 6096    |
|  | BACKGROUND      | 1120            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6096    | 32.6%      | 3.1                  | 32.6%              | 3.1                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm2 PROBE |        |                                |                            |        |                                |
|--|--------|--------------------------------|----------------------------|--------|--------------------------------|
| ELAPSED TIME<br>(in hours)               | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
| INITIAL                                  | 6380   |                                | 3 HOURS                    | 6110   | 96%                            |
| 1 HOUR                                   | 6380   | 100%                           | 3.5 HOURS                  | 6000   | 94%                            |
| 1.5 HOURS                                | 6280   | 98%                            | 4 HOURS                    | 5830   | 91%                            |
| 2 HOURS                                  | 6150   | 96%                            | 4.5 HOURS                  | 5780   | 90%                            |
| 2.5 HOURS                                | 6140   | 96%                            | 5 HOURS                    | 5760   | 90%                            |

|                |                       |
|----------------|-----------------------|
| CALIBRATED BY: | Carmen Vergari        |
| SIGNATURE:     | <i>Carmen Vergari</i> |

|       |         |
|-------|---------|
| DATE: | 5/11/98 |
|-------|---------|

|           |                                    |
|-----------|------------------------------------|
| COMMENTS: | Calibrated with Ludlum 43-68 probe |
|-----------|------------------------------------|



|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 1/28/98 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |                 |                 |                      |                              |                            |         |
|--|-----------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| SOURCE #   | ACTIVITY<br>dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
| 763/84   | 18699           | 31500           | 5                    | 6300                         | 216                        | 6084    |
|  | BACKGROUND      | 1080            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6084    | 32.5%      | 3.1                  | 32.5%              | 3.1                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm2 PROBE |        |                                |                            |        |                                |
|--|--------|--------------------------------|----------------------------|--------|--------------------------------|
| ELAPSED TIME<br>(in hours)               | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
| INITIAL                                  | 6240   | -                              | 3 HOURS                    | 6090   | 97.6%                          |
| 1 HOUR                                   | 6160   | 98.7%                          | 3.5 HOURS                  | 6100   | 97.8%                          |
| 1.5 HOURS                                | 6180   | 99%                            | 4 HOURS                    | 6140   | 98.4%                          |
| 2 HOURS                                  | 6170   | 98.9%                          | 4.5 HOURS                  | 5980   | 95.8%                          |
| 2.5 HOURS                                | 6100   | 97.8%                          | 5 HOURS                    | 5820   | 93.3%                          |

|                |                       |
|----------------|-----------------------|
| CALIBRATED BY: | Carmen Vergari        |
| SIGNATURE:     | <i>Carmen Vergari</i> |

|       |         |
|-------|---------|
| DATE: | 1/28/98 |
|-------|---------|

COMMENTS: Calibrated with Ludlum 43-68 probe. Recommend maximum use time without gas recharge: 4.5 hours.



|            |      |                  |    |       |          |
|------------|------|------------------|----|-------|----------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 10/28/97 |
|------------|------|------------------|----|-------|----------|

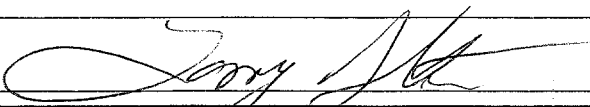
|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |                   |                 |                      |                              |                            |         |
|--|-------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| SOURCE #   | ACTIVITY<br>→ dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
| 763/84   | 18700             | 31500           | 5                    | 6300                         | 224                        | 6076    |
|  |                   |                 |                      |                              |                            |         |
|  | BACKGROUND        | 1120            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6076    | 32.5%      | 3.1                  | 32.5%              | 3.1                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm2 PROBE |        |                                |                            |        |                                |
|--|--------|--------------------------------|----------------------------|--------|--------------------------------|
| ELAPSED TIME<br>(in hours)               | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
| INITIAL                                  | 6350   | -                              | 3 HOURS                    | 6250   | 98.4%                          |
| 1 HOUR                                   | 6340   | 99.8%                          | 3.5 HOURS                  | 6200   | 97.6%                          |
| 1.5 HOURS                                | 6300   | 99.2%                          | 4 HOURS                    | 6150   | 96.8%                          |
| 2 HOURS                                  | 6260   | 98.6%                          | 4.5 HOURS                  | 6120   | 96.4%                          |
| 2.5 HOURS                                | 6290   | 99.1%                          | 5 HOURS                    | 6180   | 97.3%                          |

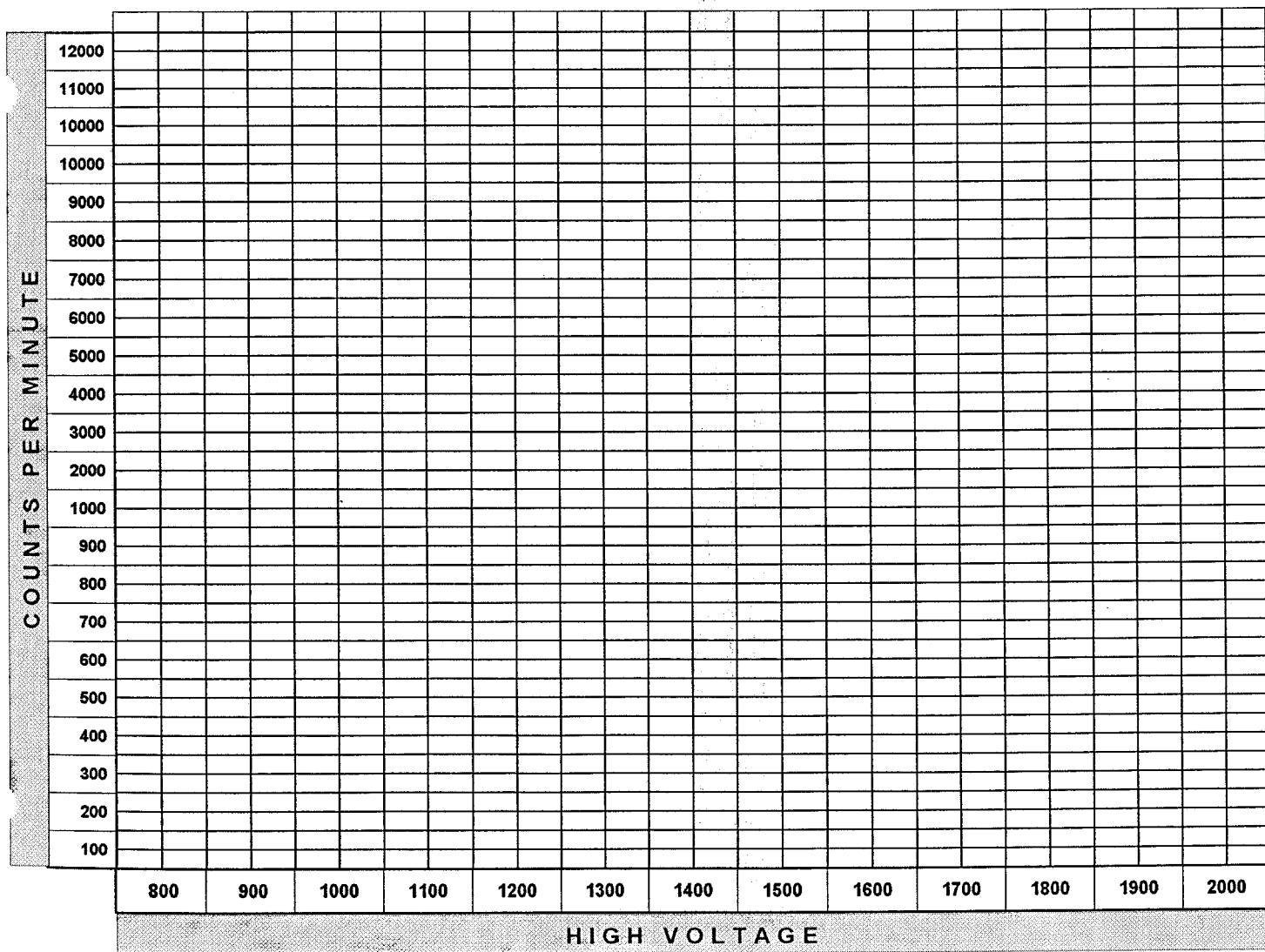
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |          |
|-------|----------|
| DATE: | 10/28/97 |
|-------|----------|

|           |                                    |
|-----------|------------------------------------|
| COMMENTS: | Calibrated with Ludlum 43-68 probe |
|-----------|------------------------------------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 4      | 1650         | 6090   |
| 900          | -      | 1300         | 6      | 1700         | 6510   |
| 950          | -      | 1350         | 15     | 1750         | 6620   |
| 1000         | -      | 1400         | 455    | 1800         | 6610   |
| 1050         | -      | 1450         | 1360   | 1850         | 6800   |
| 1100         | -      | 1500         | 2540   | 1900         | 13500  |
| 1150         | -      | 1550         | 3980   | 1950         | -      |
| 1200         | 8      | 1600         | 5380   | 2000         | -      |



|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 7/23/97 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | Beta |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |                 |                 |                      |                              |                            |         |
|--|-----------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| SOURCE #   | ACTIVITY<br>dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
| 763/84   | 18700           | 32000           | 5                    | 6400                         | 216                        | 6184    |
|  |                 |                 |                      |                              |                            |         |
|  | BACKGROUND      | 1080            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6184    | 33.0%      | 3.0                  | 33.0%              | 3.0                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm2 PROBE |        |                                |                            |        |                                |
|--|--------|--------------------------------|----------------------------|--------|--------------------------------|
| ELAPSED TIME<br>(in hours)               | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
| INITIAL                                  | 6310   | -----                          | 3 HOURS                    | 6000   | 95.1%                          |
| 1 HOUR                                   | 6360   | 100.0%                         | 3.5 HOURS                  | 5960   | 94.4%                          |
| 1.5 HOURS                                | 6240   | 98.9%                          | 4 HOURS                    | 5800   | 91.9%                          |
| 2 HOURS                                  | 6260   | 99.2%                          | 4.5 HOURS                  | 5720   | 90.6%                          |
| 2.5 HOURS                                | 6290   | 98.3%                          | 5 HOURS                    | 5730   | 90.8%                          |

|                |                       |
|----------------|-----------------------|
| CALIBRATED BY: | Carmen Vergari        |
| SIGNATURE:     | <i>Carmen Vergari</i> |

|       |         |
|-------|---------|
| DATE: | 7/23/97 |
|-------|---------|

|           |                        |
|-----------|------------------------|
| COMMENTS: | Use Only Up To 4 Hours |
|-----------|------------------------|





|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 4/15/97 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

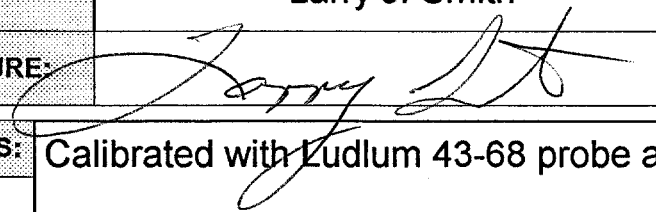
| SOURCE # | ACTIVITY<br>- dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 763/84   | 18700             | 30800           | 5                    | 6160                         | 183                        | 5977    |
|          |                   |                 |                      |                              |                            |         |
|          | BACKGROUND        | 913             | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 5977    | 31.9%      | 3.2                  | 31.9%              | 3.2                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm<sup>2</sup> PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6240   | -                              | 3 HOURS                    | 6100   | 97.7%                          |
| 1 HOUR                     | 6200   | 99.3%                          | 3.5 HOURS                  | 6150   | 98.6%                          |
| 1.5 HOURS                  | 6180   | 99%                            | 4 HOURS                    | 6090   | 97.6 <sup>^</sup>              |
| 2 HOURS                    | 6210   | 99.5%                          | 4.5 HOURS                  | 5990   | 96%                            |
| 2.5 HOURS                  | 6190   | 99.2%                          | 5 HOURS                    | 5950   | 95.4%                          |

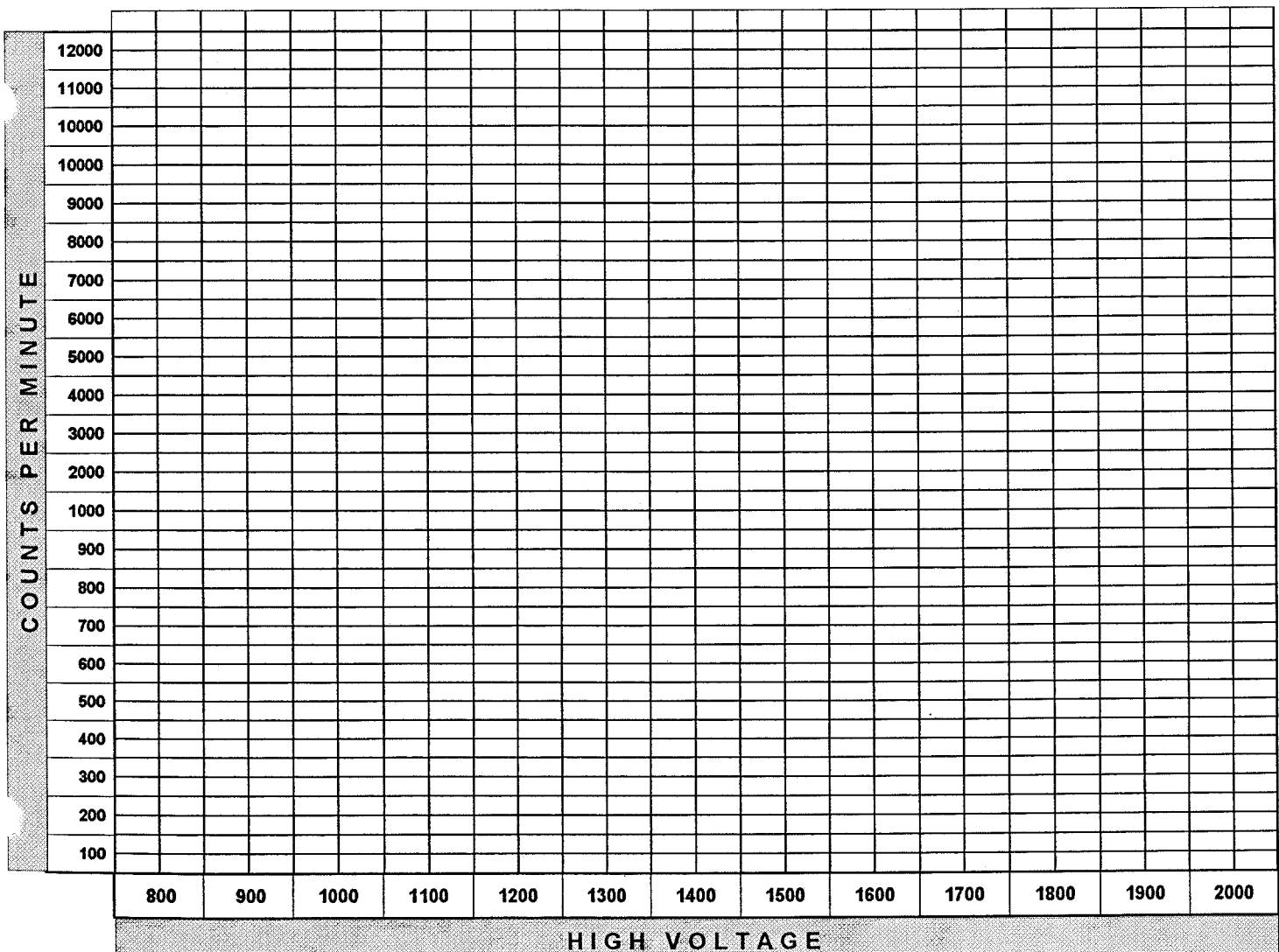
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry J. Smith  |
| SIGNATURE:     |  |

|       |         |
|-------|---------|
| DATE: | 4/15/97 |
|-------|---------|

|           |   |
|-----------|---|
| COMMENTS: | Calibrated with Ludlum 43-68 probe and 5 ft. cable. |
|-----------|---|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 12     | 1650         | 6330   |
| 900          | -      | 1300         | 12     | 1700         | 6430   |
| 950          | -      | 1350         | 77     | 1750         | 6710   |
| 1000         | -      | 1400         | 535    | 1800         | 6740   |
| 1050         | -      | 1450         | 1460   | 1850         | 6730   |
| 1100         | -      | 1500         | 2500   | 1900         | 6760   |
| 1150         | -      | 1550         | 4050   | 1950         | 19200  |
| 1200         | 4      | 1600         | 5320   | 2000         | -      |





GTS Instrument Services  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   |   | INSTRUMENT INFORMATION |                            |
|--|---|------------------------|----------------------------|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer <u>Eberline</u>     | Model <u>ESP-2</u>     | Serial Number <u>01601</u> |
| Customer Address: <u>P.O. Box 3700</u> | External Probe(s) _____                     | Serial # _____         |                            |
| <u>Pittsburgh, PA 15230</u>            | Calibration Method <u>Pulser s/n 101500</u> |                        |                            |
| Customer P.O.# <u>MB-14027-S</u>       |   |                        |                            |
| Work Order # <u>I-97-04-209</u>        |   |                        |                            |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range       | Calibration Standard Value | Instrument Response  |                      | Comment                                    |
|------------------------|----------------------------|----------------------|----------------------|--|
|                        |                            | Before Calib.        | After Calib.         |  |
| 1 <u>Dig Rate</u>      | <u>200 CPM</u>             | <u>2.00 + 02 CPM</u> | <u>2.00 + 02 CPM</u> | <u>Battery: OK</u>                         |
| 2                      | <u>400</u>                 | <u>4.00 + 02</u>     | <u>4.00 + 02</u>     |  |
| 3                      | <u>800</u>                 | <u>8.00 + 02</u>     | <u>8.00 + 02</u>     | <u>Reset: OK</u>                           |
| 4                      | <u>2K</u>                  | <u>2.00 + 03</u>     | <u>2.00 + 03</u>     |  |
| 5                      | <u>4K</u>                  | <u>4.00 + 03</u>     | <u>4.00 + 03</u>     | <u>Light: OK</u>                           |
| 6                      | <u>8K</u>                  | <u>8.00 + 03</u>     | <u>8.00 + 03</u>     |  |
| 7                      | <u>20K</u>                 | <u>2.00 + 04</u>     | <u>2.00 + 04</u>     | <u>Speaker: OK</u>                         |
| 8                      | <u>40K</u>                 | <u>4.00 + 04</u>     | <u>4.00 + 04</u>     |  |
| 9                      | <u>80K</u>                 | <u>8.01 + 04</u>     | <u>8.01 + 04</u>     | <u>DT = 3.00 - 07</u>                      |
| 10                     | <u>200K</u>                | <u>2.01 + 05</u>     | <u>2.01 + 05</u>     |  |
| 11                     | <u>400K</u>                | <u>4.01 + 05</u>     | <u>4.01 + 05</u>     | <u>CC = 1.00 + 00</u>                      |
| 12                     | <u>800K</u>                | <u>8.04 + 05</u>     | <u>8.04 + 05</u>     |  |
| 13                     | <u>2M</u>                  | <u>2.02 + 06</u>     | <u>2.02 + 06</u>     | <u>HV = 1,625volts</u>                     |
| 14                     |                            |                      |                      |  |
| 15                     |                            |                      |                      | <u>Input Sens <math>\approx</math> 4mV</u> |
| 16 <u>Scaler</u>       | <u>400</u>                 |                      |                      |  |
| 17 <u>1 min counts</u> | <u>4K</u>                  | <u>4.01 + 03</u>     | <u>4.01 + 03</u>     |  |
| 18                     | <u>40K</u>                 | <u>4.01 + 04</u>     | <u>4.01 + 04</u>     |  |
| 19                     | <u>400K</u>                | <u>4.02 + 05</u>     | <u>4.01 + 05</u>     |  |
| 20                     |                            |                      |                      |  |
| 21                     |                            |                      |                      |  |
| 22                     |                            |                      |                      |  |
| 23                     |                            |                      |                      |  |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct:<br><u>[Signature]</u> |
| Calibration Date: <u>04-09-97</u>                        | <u>04-09-97</u><br>Date  |
| Next Calibration Due: <u>07-09-97</u>                    | Administrative Coordinator   |

|            |      |                  |    |       |        |
|------------|------|------------------|----|-------|--------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 1/6/97 |
|------------|------|------------------|----|-------|--------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

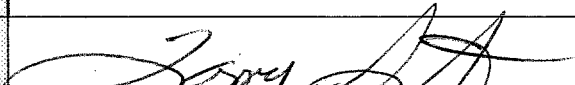
| SOURCE # | ACTIVITY<br>- dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 764/84   | 145994            | 247000          | 5                    | 49400                        | 232                        | 49168   |
|          | BACKGROUND        | 1160            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 49168   | 33.7%      | 2.96                 | 33.7%              | 2.96                         |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6410   |                                | 3 HOURS                    | 5870   | 91.4%                          |
| 1 HOUR                     | 6250   | 97.5%                          | 3.5 HOURS                  | 5990   | 93.4%                          |
| 1.5 HOURS                  | 6300   | 98.3%                          | 4 HOURS                    | 5960   | 92.9%                          |
| 2 HOURS                    | 6100   | 95.1%                          | 4.5 HOURS                  | 5900   | 92%                            |
| 2.5 HOURS                  | 5980   | 93.3%                          | 5 HOURS                    | 5860   | 91.4%                          |

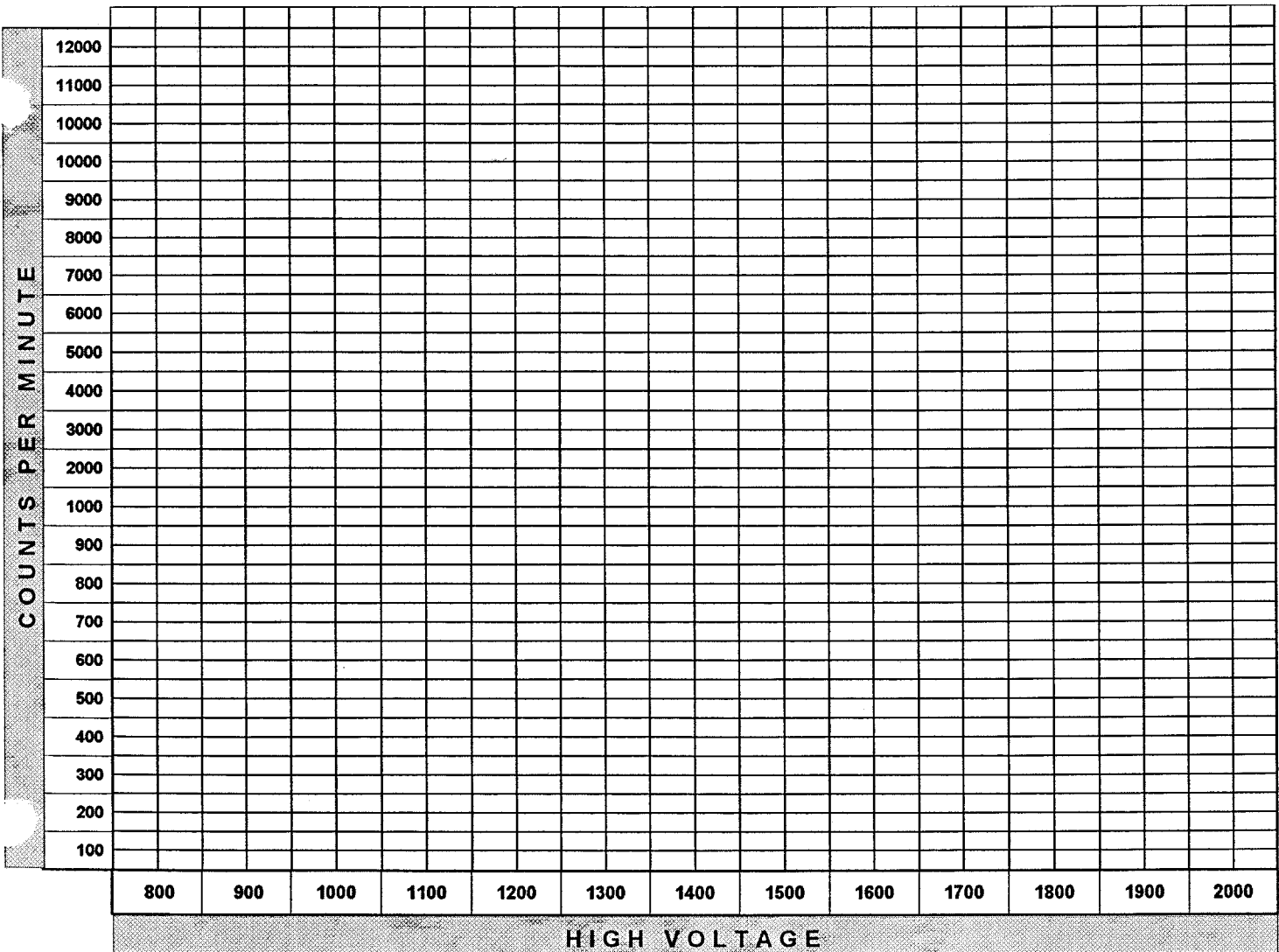
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |        |
|-------|--------|
| DATE: | 1/6/97 |
|-------|--------|

COMMENTS: Calibrated with Ludlum 43-68 probe.

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 7      | 1650         | 6450   |
| 900          | -      | 1300         | 42     | 1700         | 6430   |
| 950          | -      | 1350         | 264    | 1750         | 6400   |
| 1000         | -      | 1400         | 1320   | 1800         | 6570   |
| 1050         | -      | 1450         | 2380   | 1850         | 8290   |
| 1100         | -      | 1500         | 3520   | 1900         | -      |
| 1150         | -      | 1550         | 4640   | 1950         | -      |
| 1200         | 8      | 1600         | 6270   | 2000         | -      |



|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 10/1/96 |
|------------|------|------------------|----|-------|---------|

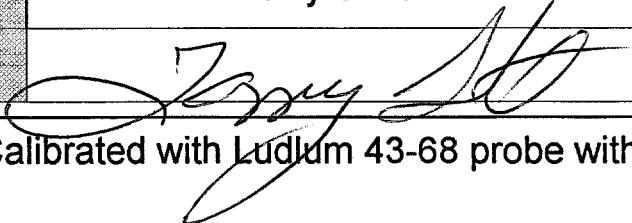
|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |                   |                 |                      |                              |                            |         |
|--|-------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| SOURCE #   | ACTIVITY<br>* dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
| 764/84   | 145994            | 253000          | 5                    | 50600                        | 302                        | 50298   |
|  |                   |                 |                      |                              |                            |         |
|  | BACKGROUND        | 1510            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 50298   | 34.7%      | 2.9                  | 34.7%              | 2.9                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1720 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm2 PROBE |        |                                |                            |        |                                |
|--|--------|--------------------------------|----------------------------|--------|--------------------------------|
| ELAPSED TIME<br>(in hours)               | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
| INITIAL                                  | 6570   |                                | 3 HOURS                    | 6500   | 98.9%                          |
| 1 HOUR                                   | 6510   | 99.1%                          | 3.5 HOURS                  | 6460   | 98.3%                          |
| 1.5 HOURS                                | 6490   | 98.8%                          | 4 HOURS                    | 6500   | 98.9%                          |
| 2 HOURS                                  | 6470   | 98.5%                          | 4.5 HOURS                  | 6540   | 99.5%                          |
| 2.5 HOURS                                | 6480   | 98.6%                          | 5 HOURS                    | 6600   | 100.4%                         |

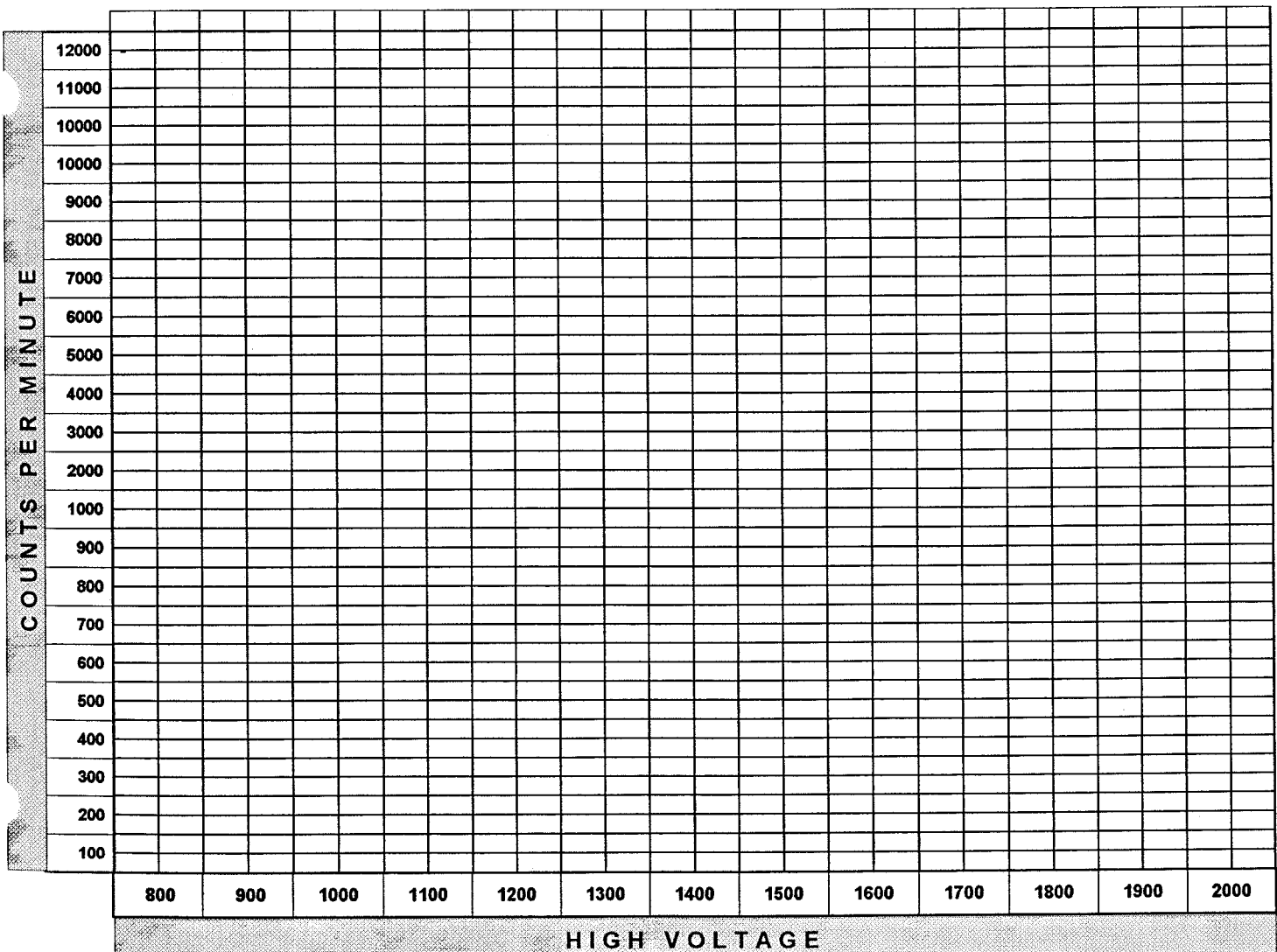
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |         |
|-------|---------|
| DATE: | 10/1/96 |
|-------|---------|

|           |   |
|-----------|---|
| COMMENTS: | Calibrated with Ludlum 43-68 probe with 10 ft. cable. |
|-----------|---|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 4      | 1650         | 4870   |
| 900          | -      | 1300         | 7      | 1700         | 50500  |
| 950          | -      | 1350         | 1070   | 1750         | 50500  |
| 1000         | -      | 1400         | 5120   | 1800         | 51000  |
| 1050         | -      | 1450         | 12900  | 1850         | 54700  |
| 1100         | -      | 1500         | 21500  | 1900         | -      |
| 1150         | -      | 1550         | 32800  | 1950         | -      |
| 1200         | -      | 1600         | 43800  | 2000         | -      |





|            |      |                  |    |       |        |
|------------|------|------------------|----|-------|--------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 7-1-96 |
|------------|------|------------------|----|-------|--------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

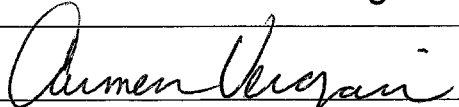
| SOURCE # | ACTIVITY<br>dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-----------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 763/84   | 18700           | 34000           | 5                    | 6800                         | 274                        | 6526    |
|          |                 |                 |                      |                              |                            |         |
|          | BACKGROUND      | 1370            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6526    | 34.9%      | 2.8                  | 34.9%              | 2.8                          |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm<sup>2</sup> PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6600   |                                | 3 HOURS                    | 6730   | 101.9%                         |
| 1 HOUR                     | 6740   | 102.1%                         | 3.5 HOURS                  | 6690   | 101.4%                         |
| 1.5 HOURS                  | 6700   | 101.5%                         | 4 HOURS                    | 6680   | 101.2%                         |
| 2 HOURS                    | 6700   | 101.5%                         | 4.5 HOURS                  | 6680   | 101.2%                         |
| 2.5 HOURS                  | 6710   | 101.6%                         | 5 HOURS                    | 6830   | 103.5%                         |

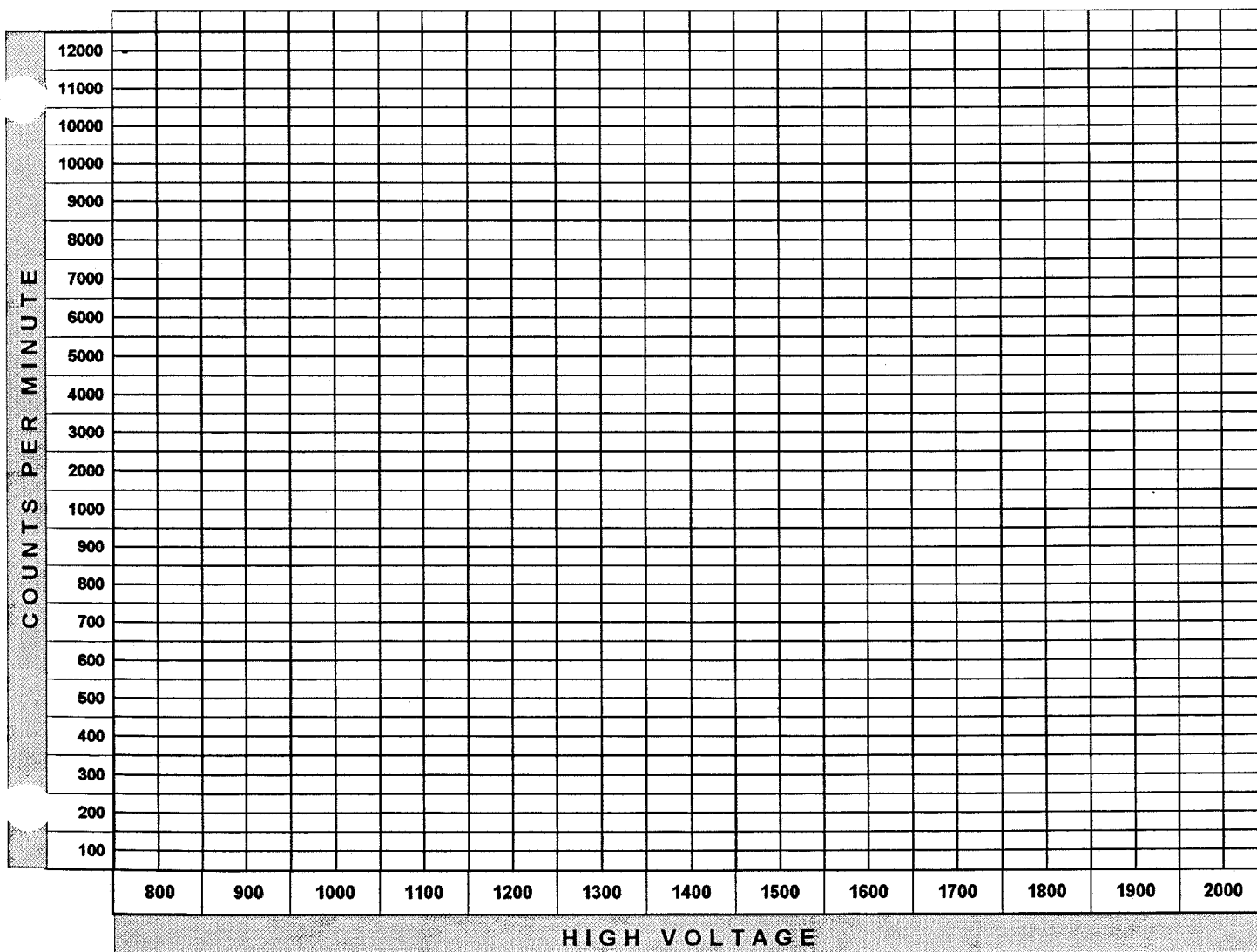
|                |   |
|----------------|---|
| CALIBRATED BY: | Carmen Vergari  |
| SIGNATURE:     |  |

|       |        |
|-------|--------|
| DATE: | 7-1-96 |
|-------|--------|

|           |                                    |
|-----------|------------------------------------|
| COMMENTS: | Calibrated with Ludlum 43-68 probe |
|-----------|------------------------------------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 15     | 1650         | 6610   |
| 900          | -      | 1300         | 283    | 1700         | 6770   |
| 950          | -      | 1350         | 895    | 1750         | 6830   |
| 1000         | -      | 1400         | 2250   | 1800         | 7120   |
| 1050         | -      | 1450         | 3440   | 1850         | 21300  |
| 1100         | -      | 1500         | 4680   | 1900         | -      |
| 1150         | -      | 1550         | 6130   | 1950         | -      |
| 1200         | 7      | 1600         | 6650   | 2000         | -      |



|            |      |                  |    |       |        |
|------------|------|------------------|----|-------|--------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 4/1/96 |
|------------|------|------------------|----|-------|--------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 763/84   | 18700        | 33300        | 5                 | 6660                      | 300                     | 6360    |
|          |              |              |                   |                           |                         |         |
|          | BACKGROUND   | 1500         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6360    | 34%        | 2.9               | 34%                | 2.9                       |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 6500   | -                           | 3 HOURS                 | 6460   | 99.4%                       |
| 1 HOUR                  | 6530   | 100.4%                      | 3.5 HOURS               | 6400   | 98.6%                       |
| 1.5 HOURS               | 6450   | 99.2%                       | 4 HOURS                 | 6290   | 96.7%                       |
| 2 HOURS                 | 6630   | 102%                        | 4.5 HOURS               | 6120   | 94.1%                       |
| 2.5 HOURS               | 6370   | 98%                         | 5 HOURS                 | 6070   | 93.4%                       |

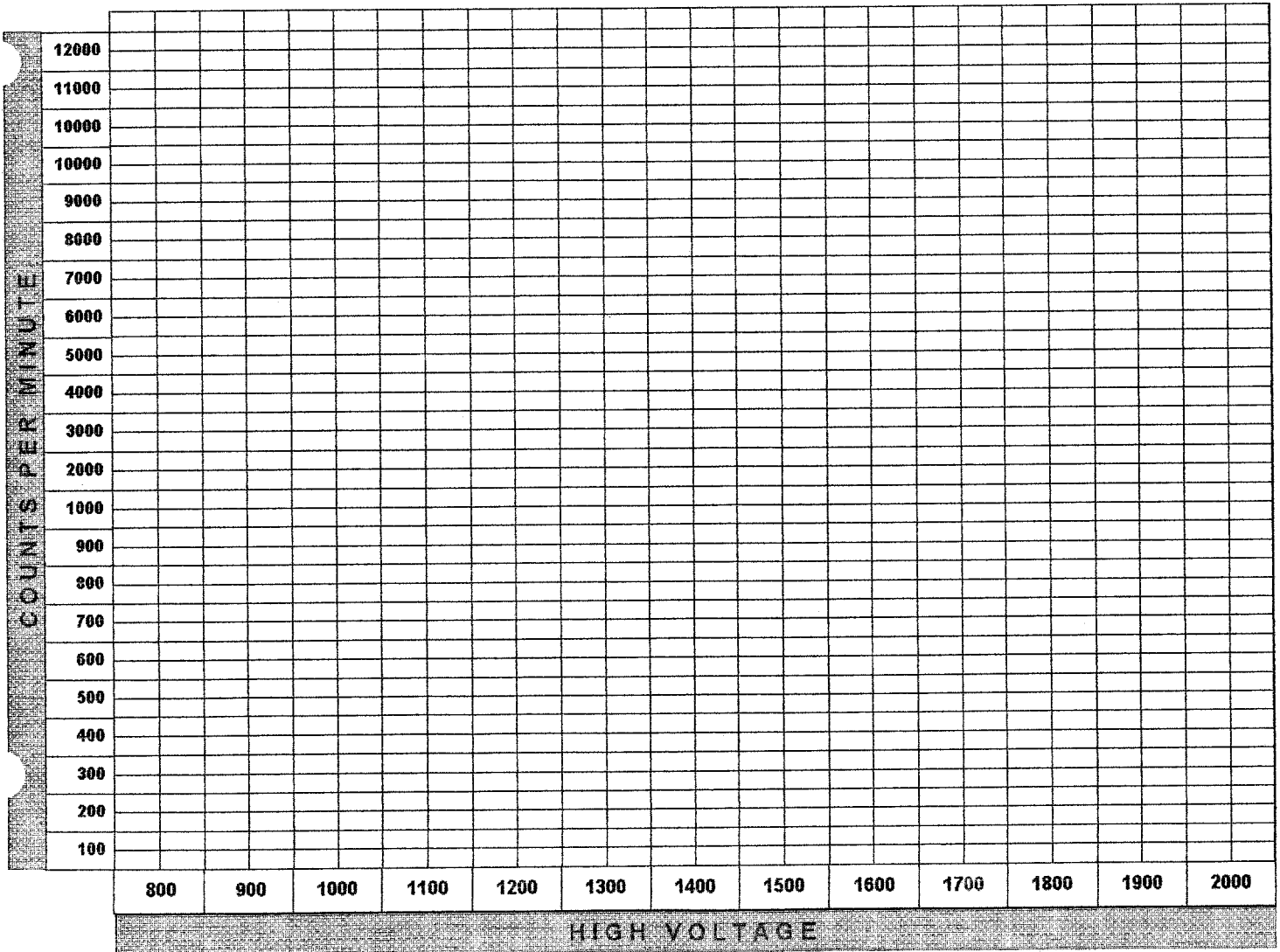
|                |                       |
|----------------|-----------------------|
| CALIBRATED BY: | Carmen Vergari        |
| SIGNATURE:     | <i>Carmen Vergari</i> |

|       |        |
|-------|--------|
| DATE: | 4/1/96 |
|-------|--------|

|           |                                    |
|-----------|------------------------------------|
| COMMENTS: | Calibrated with Ludlum 43-68 probe |
|-----------|------------------------------------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 16     | 1650         | 6560   |
| 900          | -      | 1300         | 237    | 1700         | 6720   |
| 950          | -      | 1350         | 826    | 1750         | 6610   |
| 1000         | -      | 1400         | 2140   | 1800         | 6800   |
| 1050         | -      | 1450         | 3190   | 1850         | 21700  |
| 1100         | -      | 1500         | 4440   | 1900         | -      |
| 1150         | -      | 1550         | 5900   | 1950         | -      |
| 1200         | 7      | 1600         | 6450   | 2000         | -      |



|            |      |                  |    |       |          |
|------------|------|------------------|----|-------|----------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 12/23/95 |
|------------|------|------------------|----|-------|----------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 763/84   | 18700        | 33600        | 5                 | 6720                      | 278                     | 6442    |
|          |              |              |                   |                           |                         |         |
|          | BACKGROUND   | 1390         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6442    | 34.4       | 2.91              | 34.4%              | 2.91                      |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 6730   | -                           | 3 HOURS                 | 6590   | 97.9%                       |
| 1 HOUR                  | 6680   | 99.3%                       | 3.5 HOURS               | 6680   | 99.3%                       |
| 1.5 HOURS               | 6650   | 98.8%                       | 4 HOURS                 | 6710   | 99.7%                       |
| 2 HOURS                 | 6730   | 100%                        | 4.5 HOURS               | 6830   | 101.5%                      |
| 2.5 HOURS               | 6720   | 99.5%                       | 5 HOURS                 | 6590   | 97.9%                       |

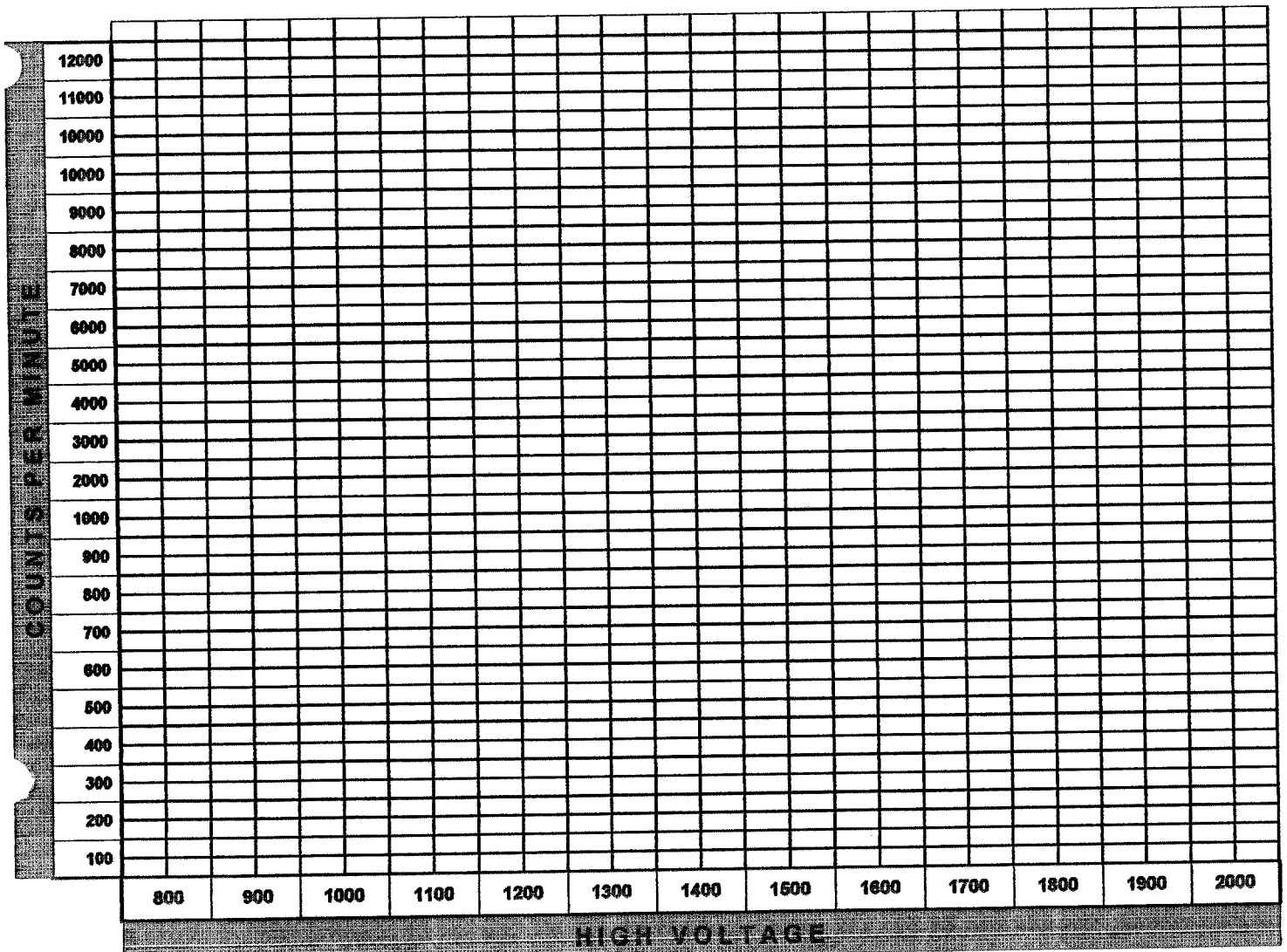
|                |             |
|----------------|-------------|
| CALIBRATED BY: | Larry Smith |
| SIGNATURE:     |             |

|       |          |
|-------|----------|
| DATE: | 12/23/95 |
|-------|----------|

COMMENTS: Calibrated with Ludlum 43-68 probe and 5 ft. cable.  
 (NOTE: DO NOT USE 10 ft. CABLE AS EFFICIENCY WILL DIFFER.)

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 17     | 1650         | 6740   |
| 900          | -      | 1300         | 241    | 1700         | 6700   |
| 950          | -      | 1350         | 771    | 1750         | 6830   |
| 1000         | -      | 1400         | 2120   | 1800         | 7030   |
| 1050         | -      | 1450         | 3150   | 1850         | 27100  |
| 1100         | 9      | 1500         | 4670   | 1900         | -      |
| 1150         | 16     | 1550         | 5740   | 1950         | -      |
| 1200         | 17     | 1600         | 6490   | 2000         | -      |



|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 10/2/95 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 763/84   | 18700        | 33200        | 5                 | 6640                      | 294                     | 6346    |
|          | BACKGROUND   | 1470         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6346    | 33.9%      | 2.9               | 33.9%              | 2.9                       |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1700 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 6450   | ---                         | 3 HOURS                 | 6300   | 97.7%                       |
| 1 HOUR                  | 6440   | 99.8%                       | 3.5 HOURS               | 6310   | 97.8%                       |
| 1.5 HOURS               | 6420   | 99.5%                       | 4 HOURS                 | 6280   | 97.4%                       |
| 2 HOURS                 | 6430   | 99.7%                       | 4.5 HOURS               | 6240   | 96.7%                       |
| 2.5 HOURS               | 6330   | 98.1%                       | 5 HOURS                 | 6160   | 95.5%                       |

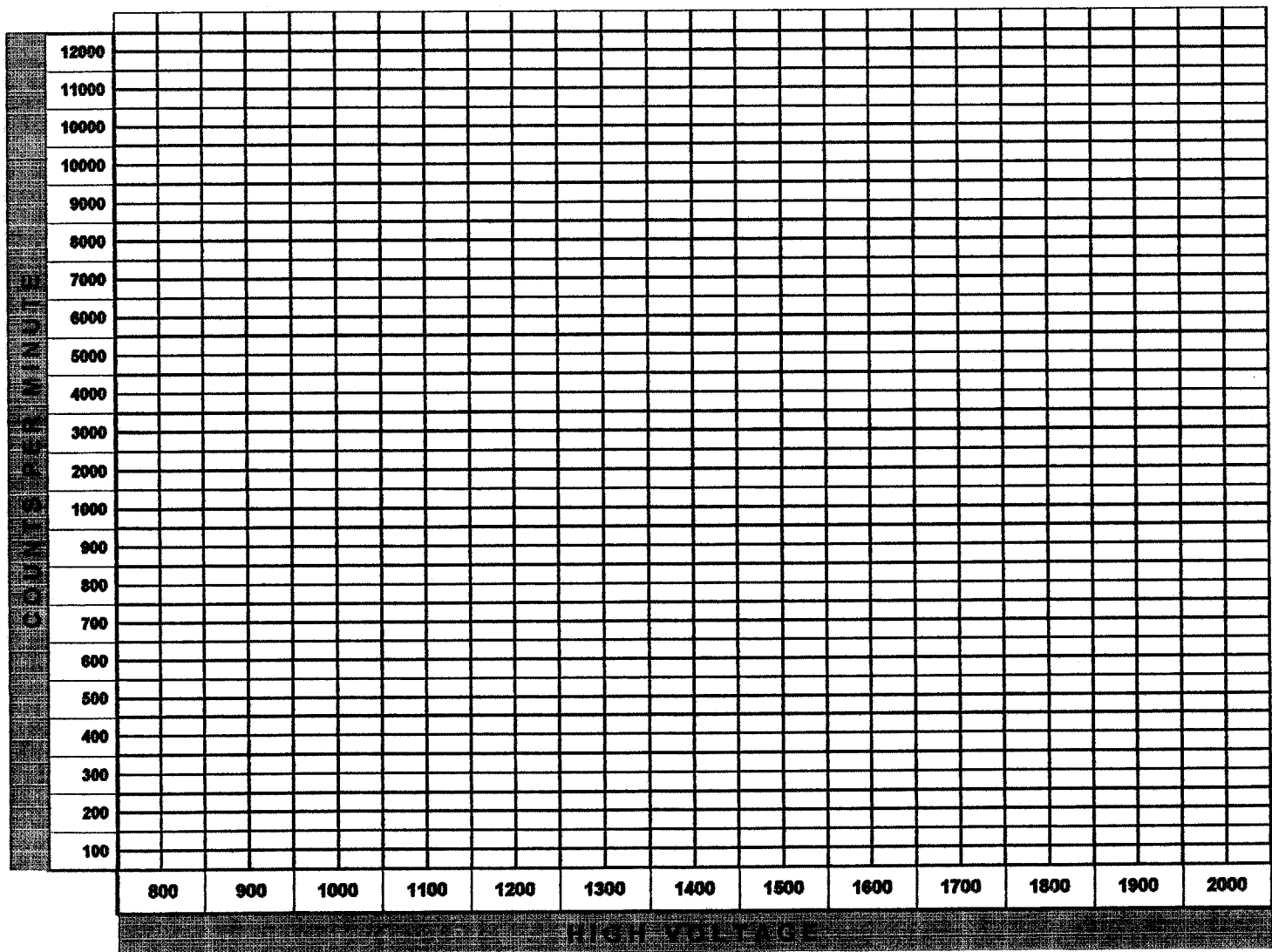
|                |                       |
|----------------|-----------------------|
| CALIBRATED BY: | Carmen Vergari        |
| SIGNATURE:     | <i>Carmen Vergari</i> |

|       |         |
|-------|---------|
| DATE: | 10/2/95 |
|-------|---------|

COMMENTS: Calibrated with Ludlum 43-68 probe.

ALPHA / BETA: BETA

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | ---    | 1250         | 9      | 1650         | 6530   |
| 900          | ---    | 1300         | 11     | 1700         | 6750   |
| 950          | ---    | 1350         | 266    | 1750         | 6710   |
| 1000         | ---    | 1400         | 870    | 1800         | 6800   |
| 1050         | ---    | 1450         | 1940   | 1850         | 13000  |
| 1100         | ---    | 1500         | 3060   | 1900         | ---    |
| 1150         | ---    | 1550         | 4450   | 1950         | ---    |
| 1200         | 6      | 1600         | 6060   | 2000         | ---    |







GTS Instrument Services  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   | INSTRUMENT INFORMATION                       |
|--|--|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer <u>Eberline</u>      |
| Customer Address: <u>P.O. Box 3700</u> | Model <u>ESP-2</u> Serial Number <u>1601</u> |
| <u>Pittsburgh, PA 15230</u>            | External Probe(s) _____ Serial # _____       |
| Customer P.O.# <u>MB-14027-S</u>       | Calibration Method <u>Pulser s/n 101500</u>  |
| Work Order # <u>I-95-09-210</u>        |  |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |               | Comment                         |
|----|------------------|----------------------------|---------------------|---------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib.  |                                 |
| 1  | RATE METER       | 200 CPM                    | 2.00 + 02 CPM       | 2.00 + 02 CPM | All Calibrations Btn. + & - 10% |
| 2  |                  | 800                        | 8.00 + 02           | 8.00 + 02     | Battery: OK                     |
| 3  |                  | 2K                         | 2.00 + 03           | 2.00 + 03     | Reset: OK                       |
| 4  |                  | 8K                         | 8.00 + 03           | 8.00 + 03     | Light: OK                       |
| 5  |                  |                            |                     |               | Speaker: OK                     |
| 6  |                  | 20K                        | 2.00 + 04           | 2.00 + 04     |                                 |
| 7  |                  | 80K                        | 8.01 + 04           | 8.00 + 04     |                                 |
| 8  |                  |                            |                     |               |                                 |
| 9  |                  | 200K                       | 2.00 + 05           | 2.00 + 05     |                                 |
| 10 |                  | 800K                       | 8.11 + 05           | 8.03 + 05     | Input Sensitivity = 2mV         |
| 11 |                  |                            |                     |               |                                 |
| 12 |                  | 2M                         | 2.05 + 06           | 2.02 + 06     | DT = 3.00 - 07                  |
| 13 |                  |                            |                     |               | CC = 1.00 + 00                  |
| 14 |                  |                            |                     |               |                                 |
| 15 | SCALER           | 200                        | 2.00 + 02           | 2.00 + 02     | High Voltage: OK                |
| 16 | Intergrating     |                            |                     |               |                                 |
| 17 | 1 minute counts  | 2K                         | 2.00 + 03           | 2.00 + 03     | Electronic calibration only     |
| 18 |                  | 20K                        | 2.00 + 04           | 2.00 + 04     |                                 |
| 19 |                  |                            |                     |               |                                 |
| 20 |                  | 200K                       | 2.00 + 05           | 2.00 + 05     |                                 |
| 21 |                  |                            |                     |               |                                 |
| 22 |                  | 2M                         | 2.02 + 06           | 2.02 + 06     |                                 |
| 23 |                  |                            |                     |               |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|   |  |
|---|--|
| Instrument Calibrated by <u>[Signature]</u> | I certify that the above information is correct: |
| Calibration Date: <u>09-27-95</u> (Signed)  | <u>[Signature]</u> 09-27-95                      |
| Next Calibration Due: <u>12-27-95</u>       | Administrative Coordinator Date                  |

|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 6/28/95 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

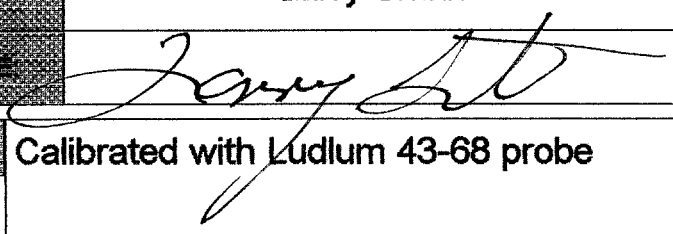
| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 763/84   | 18700        | 33500        | 5                 | 6700                      | 232                     | 6468    |
|          | BACKGROUND   | 1160         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6468    | 34.6%      | 2.9               | 34.6%              | 2.9                       |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1650 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 6540   | ---                         | 3 HOURS                 | 6520   | 99.7%                       |
| 1 HOUR                  | 6560   | 100.3%                      | 3.5 HOURS               | 6500   | 99.4%                       |
| 1.5 HOURS               | 6510   | 99.5%                       | 4 HOURS                 | 6550   | 100.1%                      |
| 2 HOURS                 | 6490   | 99.2%                       | 4.5 HOURS               | 6600   | 100.9%                      |
| 2.5 HOURS               | 6480   | 99.1%                       | 5 HOURS                 | 6670   | 101.9%                      |

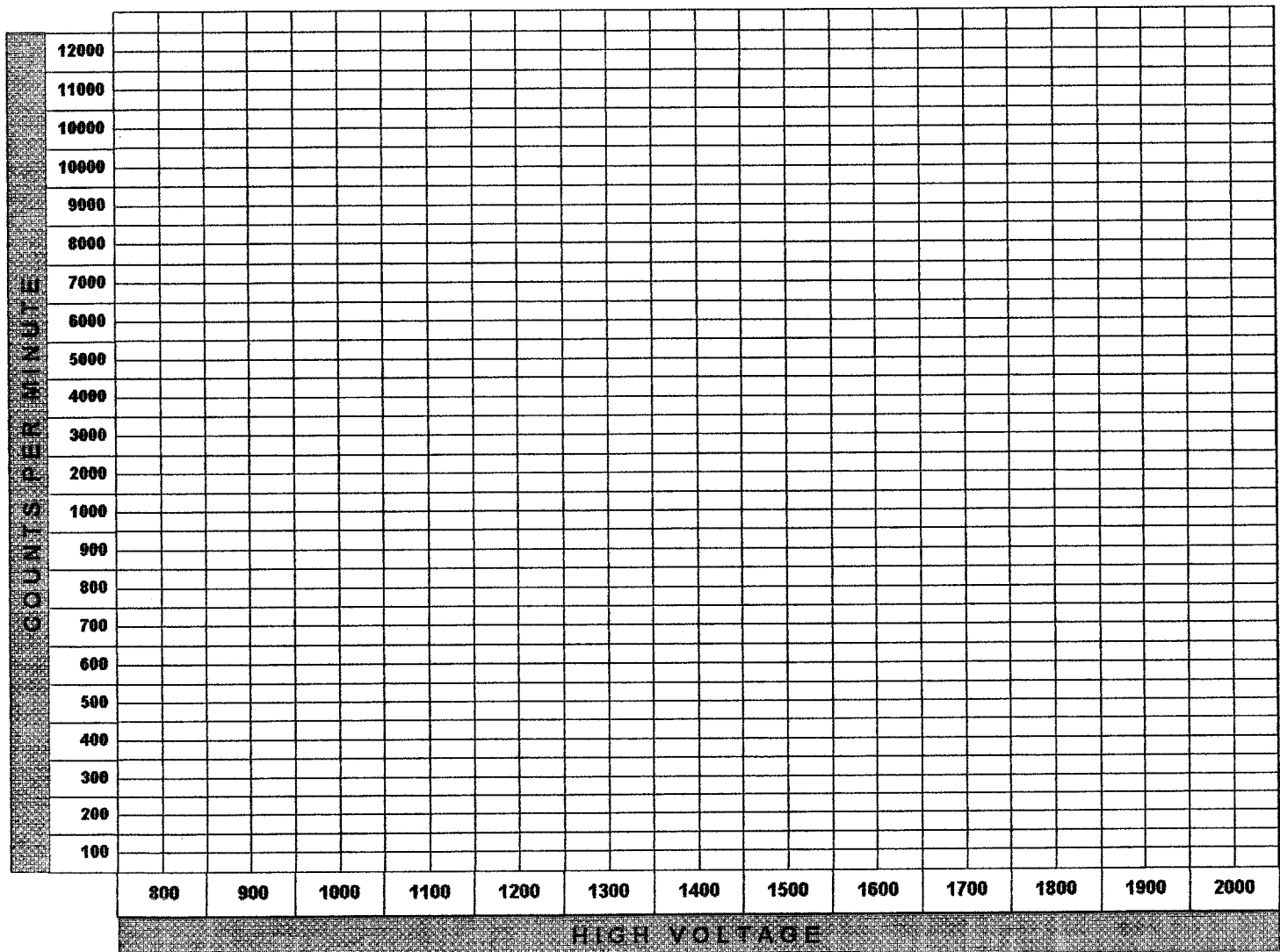
|                |  |
|----------------|--|
| CALIBRATED BY: | Larry Smith  |
| SIGNATURE:     |  |

|       |         |
|-------|---------|
| DATE: | 6/28/95 |
|-------|---------|

|           |                                    |
|-----------|------------------------------------|
| COMMENTS: | Calibrated with Ludlum 43-68 probe |
|-----------|------------------------------------|

ALPHA / BETA: BETA

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | ---    | 1250         | 1      | 1650         | 6790   |
| 900          | ---    | 1300         | 7      | 1700         | 6760   |
| 950          | ---    | 1350         | 105    | 1750         | 6860   |
| 1000         | ---    | 1400         | 908    | 1800         | 7160   |
| 1050         | ---    | 1450         | 2100   | 1850         | 22000  |
| 1100         | ---    | 1500         | 3380   | 1900         | ---    |
| 1150         | ---    | 1550         | 4900   | 1950         | ---    |
| 1200         | 3      | 1600         | 6120   | 2000         | ---    |





**GTS Instrument Services**  
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 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION  | INSTRUMENT INFORMATION                       |
|---|--|
| Customer Name: <u>Westinghouse</u>                                    | Instrument Manufacturer <u>Eberline</u>      |
| Customer Address: <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model <u>ESP-2</u> Serial Number <u>1601</u> |
| Customer P.O.# <u>MB-14027-S</u>                                      | External Probe(s) _____ Serial # _____       |
| Work Order # <u>I-95-06-208</u>                                       | Calibration Method <u>Pulser s/n 101500</u>  |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |               | Comment   |
|------------------|----------------------------|---------------------|---------------|---|
|                  |                            | Before Calib.       | After Calib.  |   |
| 1 RATE METER     | 200 CPM                    |                     | 2.00 + 02 CPM | All Calibrations Btn. + & - 10%<br><br>Battery: OK<br><br>Reset: OK<br><br>Light: OK<br><br>Speaker: OK<br><br>Input Sensitivity $\approx$ 2mV<br><br>DT = 2.00 - 07<br>CC = 1.00 + 00<br><br>Electronic Calibration only |
| 2                | 800                        |                     | 8.00 + 02     |   |
| 3                |                            |                     |               |   |
| 4                | 2K                         |                     | 2.00 + 03     |   |
| 5                | 8K                         |                     | 8.00 + 03     |   |
| 6                |                            |                     |               |   |
| 7                | 20K                        |                     | 2.00 + 04     |   |
| 8                | 80K                        |                     | 8.00 + 04     |   |
| 9                |                            |                     |               |   |
| 10               | 200K                       |                     | 2.00 + 05     |   |
| 11               | 800K                       |                     | 8.02 + 05     |   |
| 12               |                            |                     |               |   |
| 13               | 2M                         |                     | 2.01 + 06     |   |
| 14               |                            |                     |               |   |
| 15 SCALER        | 200                        |                     | 2.01 + 02     |   |
| 16 INTEGRATING   |                            |                     |               |   |
| 17 1 MIN COUNTS  | 2K                         |                     | 2.00 + 03     |   |
| 18               |                            |                     |               |   |
| 19               | 20K                        |                     | 2.00 + 04     |   |
| 20               |                            |                     |               |   |
| 21               | 200K                       |                     | 2.01 + 05     |   |
| 22               |                            |                     |               |   |
| 23               | 2M                         |                     | 2.02 + 06     |   |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: [Signature]  
 Calibration Date: 06-05-95  
 Next Calibration Due: 09-05-95

I certify that the above information is correct:  
[Signature]  
 Administrative Coordinator Date 06-05-95

|            |      |                  |    |       |        |
|------------|------|------------------|----|-------|--------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 3-3-95 |
|------------|------|------------------|----|-------|--------|

|              |      |
|--------------|------|
| ALPHA / BETA | BETA |
|--------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

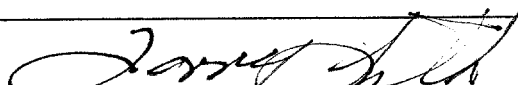
| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG CPM (TBM / # min) | NET CPM |
|----------|--------------|--------------|-------------------|---------------------------|-----------------------|---------|
| 763/84   | 18700        | 31500        | 5                 | 6300                      | 284                   | 6016    |
|          | BACKGROUND   | 1420         | 5                 |                           |                       |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6016    | 32.1       | 3.11              | 32.1%              | 3.11                      |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1700 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm<sup>2</sup> PROBE

| ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 6480   |                             | 3 HOURS                 | 6370   | 98.3%                       |
| 1 HOUR                  | 6330   | 97.7%                       | 3.5 HOURS               | 6420   | 99.1%                       |
| 1.5 HOURS               | 6430   | 99.2%                       | 4 HOURS                 | 6390   | 98.6%                       |
| 2 HOURS                 | 6470   | 99.8%                       | 4.5 HOURS               | 6410   | 98.9%                       |
| 2.5 HOURS               | 6380   | 98.5%                       | 5 HOURS                 | 6260   | 96.6%                       |

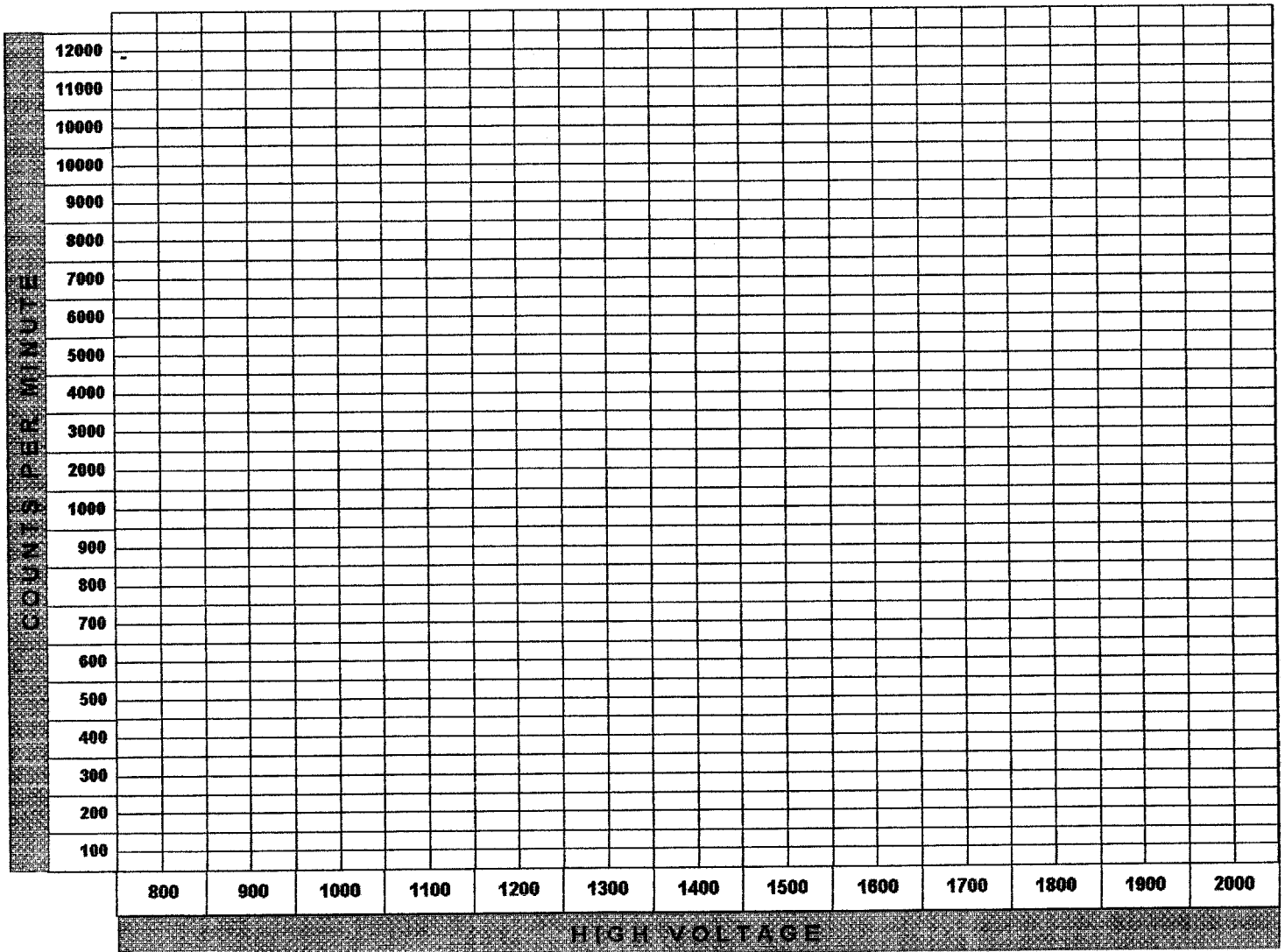
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |        |
|-------|--------|
| DATE: | 3-3-95 |
|-------|--------|

|           |                                     |
|-----------|-------------------------------------|
| COMMENTS: | Calibrated with Ludlum 43-68 probe. |
|-----------|-------------------------------------|

|              |      |
|--------------|------|
| ALPHA / BETA | BETA |
|--------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 6      | 1650         | 6270   |
| 900          | -      | 1300         | 11     | 1700         | 6420   |
| 950          | -      | 1350         | 167    | 1750         | 6650   |
| 1000         | -      | 1400         | 1070   | 1800         | 6500   |
| 1050         | -      | 1450         | 1990   | 1850         | 6780   |
| 1100         | -      | 1500         | 3050   | 1900         | 14600  |
| 1150         | -      | 1550         | 4610   | 1950         | -      |
| 1200         | 6      | 1600         | 5770   | 2000         | -      |



|            |      |                  |    |       |          |
|------------|------|------------------|----|-------|----------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 11-21-94 |
|------------|------|------------------|----|-------|----------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

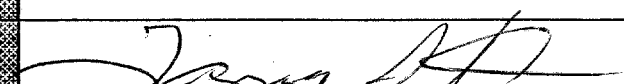
| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 763/84   | 18700        | 32700        | 5                 | 6540                      | 294                     | 6246    |
|          | BACKGROUND   | 1470         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6246    | 33.4%      | 2.99              | 33.4%              | 2.99                      |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1700 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 6380   | 100%                        | 3 HOURS                 | 6310   | 98.9%                       |
| 1 HOUR                  | 6430   | 100.8%                      | 3.5 HOURS               | 6250   | 97.9%                       |
| 1.5 HOURS               | 6370   | 98.8%                       | 4 HOURS                 | 6100   | 95.6%                       |
| 2 HOURS                 | 6270   | 98.3%                       | 4.5 HOURS               | 6100   | 95.6%                       |
| 2.5 HOURS               | 6340   | 99.4%                       | 5 HOURS                 | 5960   | 93.4%                       |

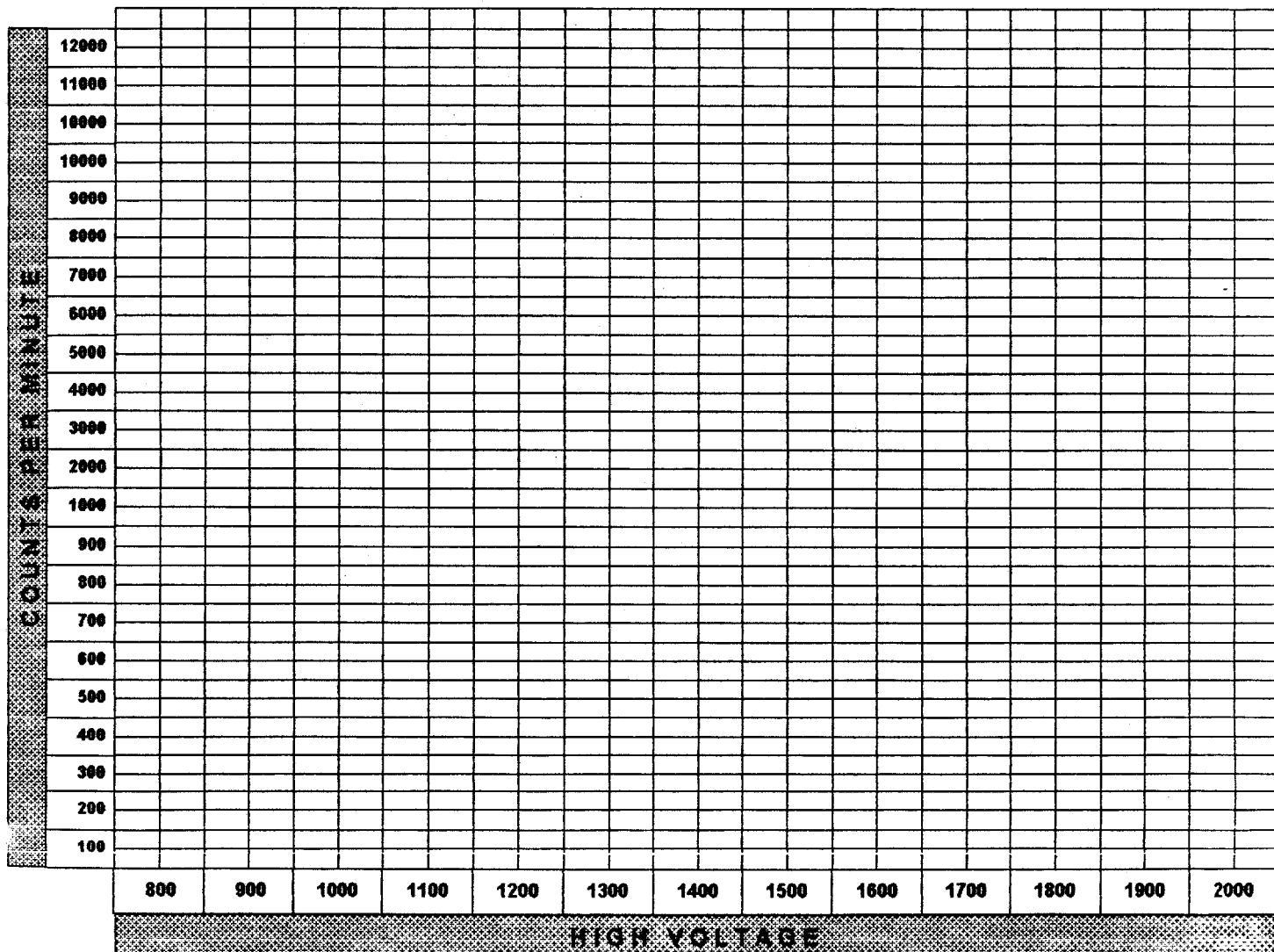
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |          |
|-------|----------|
| DATE: | 11-21-94 |
|-------|----------|

|           |                                    |
|-----------|------------------------------------|
| COMMENTS: | Calibrated with Ludlum 44-68 probe |
|-----------|------------------------------------|

ALPHA / BETA: -

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 8      | 1650         | 6280   |
| 900          | -      | 1300         | 9      | 1700         | 6590   |
| 950          | -      | 1350         | 166    | 1750         | 6560   |
| 1000         | -      | 1400         | 792    | 1800         | 6630   |
| 1050         | -      | 1450         | 1850   | 1850         | 7990   |
| 1100         | -      | 1500         | 3350   | 1900         | -      |
| 1150         | -      | 1550         | 4860   | 1950         | -      |
| 1200         | 6      | 1600         | 5590   | 2000         | -      |





|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 8/18/94 |
|------------|------|------------------|----|-------|---------|

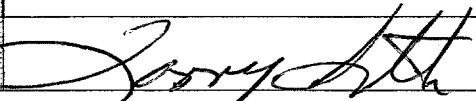
|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |                   |                 |                      |                              |                            |         |
|--|-------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| SOURCE #   | ACTIVITY<br>- dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
| 763/84   | 18699             | 31600           | 5                    | 6320                         | 222                        | 6093    |
|  |                   |                 |                      |                              |                            |         |
|  | BACKGROUND        | 1110            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6093    | 32.6%      | 3.06                 | 32.6%              | 3.06                         |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1700 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm2 PROBE |        |                                |                            |        |                                |
|--|--------|--------------------------------|----------------------------|--------|--------------------------------|
| ELAPSED TIME<br>(in hours)               | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
| INITIAL                                  | 6380   |                                | 3 HOURS                    | 6350   | 99.5%                          |
| 1 HOUR                                   | 6270   | 98.2%                          | 3.5 HOURS                  | 6260   | 98.1%                          |
| 1.5 HOURS                                | 6240   | 97.3%                          | 4 HOURS                    | 6110   | 95.7%                          |
| 2 HOURS                                  | 6280   | 98.4%                          | 4.5 HOURS                  | 6180   | 96.4%                          |
| 2.5 HOURS                                | 6310   | 98.9%                          | 5 HOURS                    | 6140   | 96.2%                          |

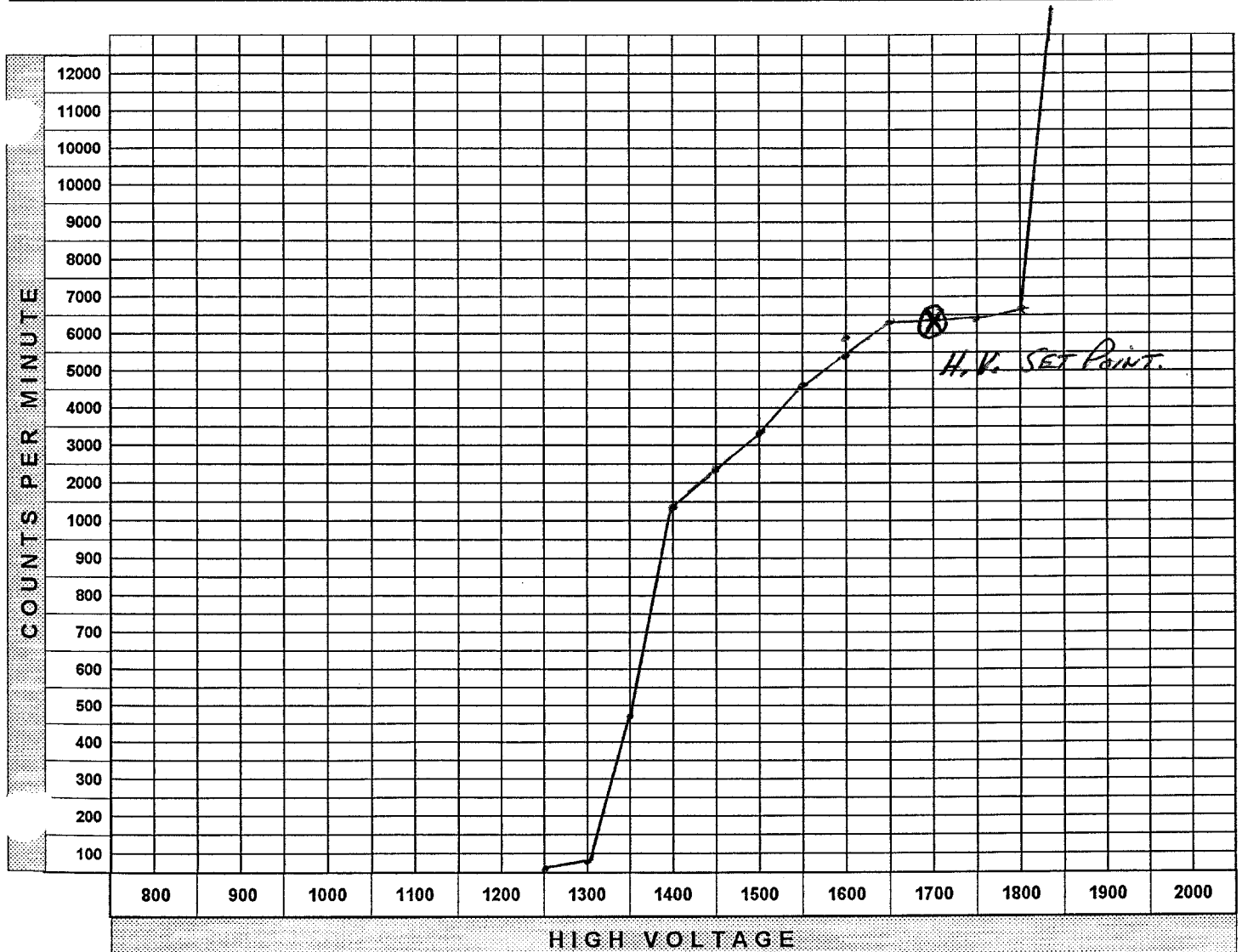
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |         |
|-------|---------|
| DATE: | 8/18/94 |
|-------|---------|

|           |  |
|-----------|--|
| COMMENTS: | Calibrated with Ludlum 43-68 gas probe |
|-----------|--|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | -      | 1250         | 7      | 1650         | 6290   |
| 900          | -      | 1300         | 26     | 1700         | 6270   |
| 950          | -      | 1350         | 467    | 1750         | 6310   |
| 1000         | -      | 1400         | 1300   | 1800         | 6610   |
| 1050         | -      | 1450         | 2310   | 1850         | 14100  |
| 1100         | -      | 1500         | 3333   | 1900         | -      |
| 1150         | -      | 1550         | 4570   | 1950         | -      |
| 1200         | -      | 1600         | 5430   | 2000         | -      |



|            |      |                  |    |       |         |
|------------|------|------------------|----|-------|---------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 5/18/94 |
|------------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | Beta |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

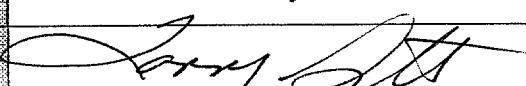
| SOURCE # | ACTIVITY dpm | TOTAL COUNTS | TIME (in minutes) | GROSS CPM (Total / # min) | BKG cpm (Total / # min) | NET cpm |
|----------|--------------|--------------|-------------------|---------------------------|-------------------------|---------|
| 763/84   | 18699        | 31600        | 5                 | 6320                      | 242                     | 6078    |
|          | BACKGROUND   | 1210         | 5                 |                           |                         |         |

| NET cpm | EFFICIENCY | CORRECTION FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION FACTOR |
|---------|------------|-------------------|--------------------|---------------------------|
| 6078    | 32.5%      | 3.08              | 32.5%              | 3.08                      |
|         |            |                   |                    |                           |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1700 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm2 PROBE

| ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) | ELAPSED TIME (in hours) | COUNTS | PERCENT (of original count) |
|-------------------------|--------|-----------------------------|-------------------------|--------|-----------------------------|
| INITIAL                 | 6410   |                             | 3 HOURS                 | 6290   | 98.1%                       |
| 1 HOUR                  | 6430   | 100%                        | 3.5 HOURS               | 6310   | 98.4%                       |
| 1.5 HOURS               | 6410   | 100%                        | 4 HOURS                 | 6340   | 98.9%                       |
| 2 HOURS                 | 6450   | 100.1%                      | 4.5 HOURS               | 6290   | 98.1%                       |
| 2.5 HOURS               | 6470   | 100.1%                      | 5 HOURS                 | 6350   | 99%                         |

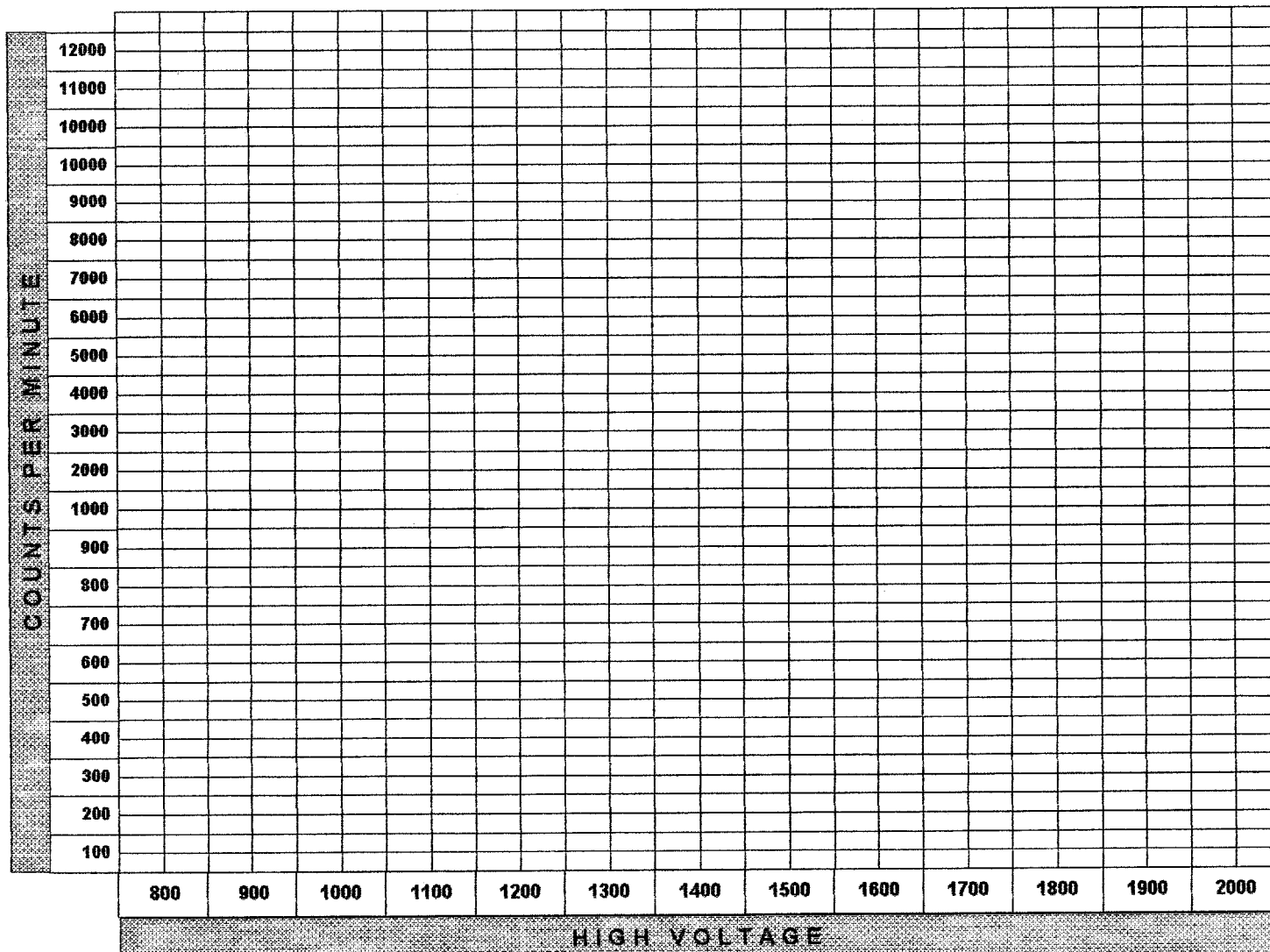
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |         |
|-------|---------|
| DATE: | 5/18/94 |
|-------|---------|

|           |                                     |
|-----------|-------------------------------------|
| COMMENTS: | Calibrated with Ludlum 43-68 probe. |
|-----------|-------------------------------------|

|               |      |
|---------------|------|
| ALPHA / BETA: | Beta |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | ---    | 1250         | 6      | 1650         | 6200   |
| 900          | ---    | 1300         | 25     | 1700         | 6430   |
| 950          | ---    | 1350         | 426    | 1750         | 6390   |
| 1000         | ---    | 1400         | 1190   | 1800         | 6540   |
| 1050         | ---    | 1450         | 2190   | 1850         | 14000  |
| 1100         | ---    | 1500         | 3320   | 1900         | ---    |
| 1150         | 7      | 1550         | 4520   | 1950         | ---    |
| 1200         | 8      | 1600         | 5990   | 2000         | ---    |



|           |      |                  |    |       |         |
|-----------|------|------------------|----|-------|---------|
| SP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 2-21-94 |
|-----------|------|------------------|----|-------|---------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency)

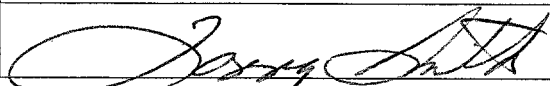
| SOURCE # | ACTIVITY<br>dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
|----------|-----------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| 763/84   | 18699           | 35000           | 5                    | 7000                         | 223                        | 6777    |
|          |                 |                 |                      |                              |                            |         |
|          | BACKGROUND      | 1117            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6777    | 36.2       | 2.76                 | 36.2               | 2.76                         |
|         |            |                      |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1750 |
|---------------|------|

GAS DECAY CALIBRATION WITH 100 cm<sup>2</sup> PROBE

| ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
|----------------------------|--------|--------------------------------|----------------------------|--------|--------------------------------|
| INITIAL                    | 6950   | 100.0%                         | 3 HOURS                    | 6830   | 98.3%                          |
| 1 HOUR                     | 6990   | 100.5%                         | 3.5 HOURS                  | 6660   | 95.8%                          |
| 1.5 HOURS                  | 7070   | 101.7%                         | 4 HOURS                    | 6560   | 94.4%                          |
| 2 HOURS                    | 7000   | 100.7%                         | 4.5 HOURS                  |        |                                |
| 2.5 HOURS                  | 6820   | 98.1%                          | 5 HOURS                    |        |                                |

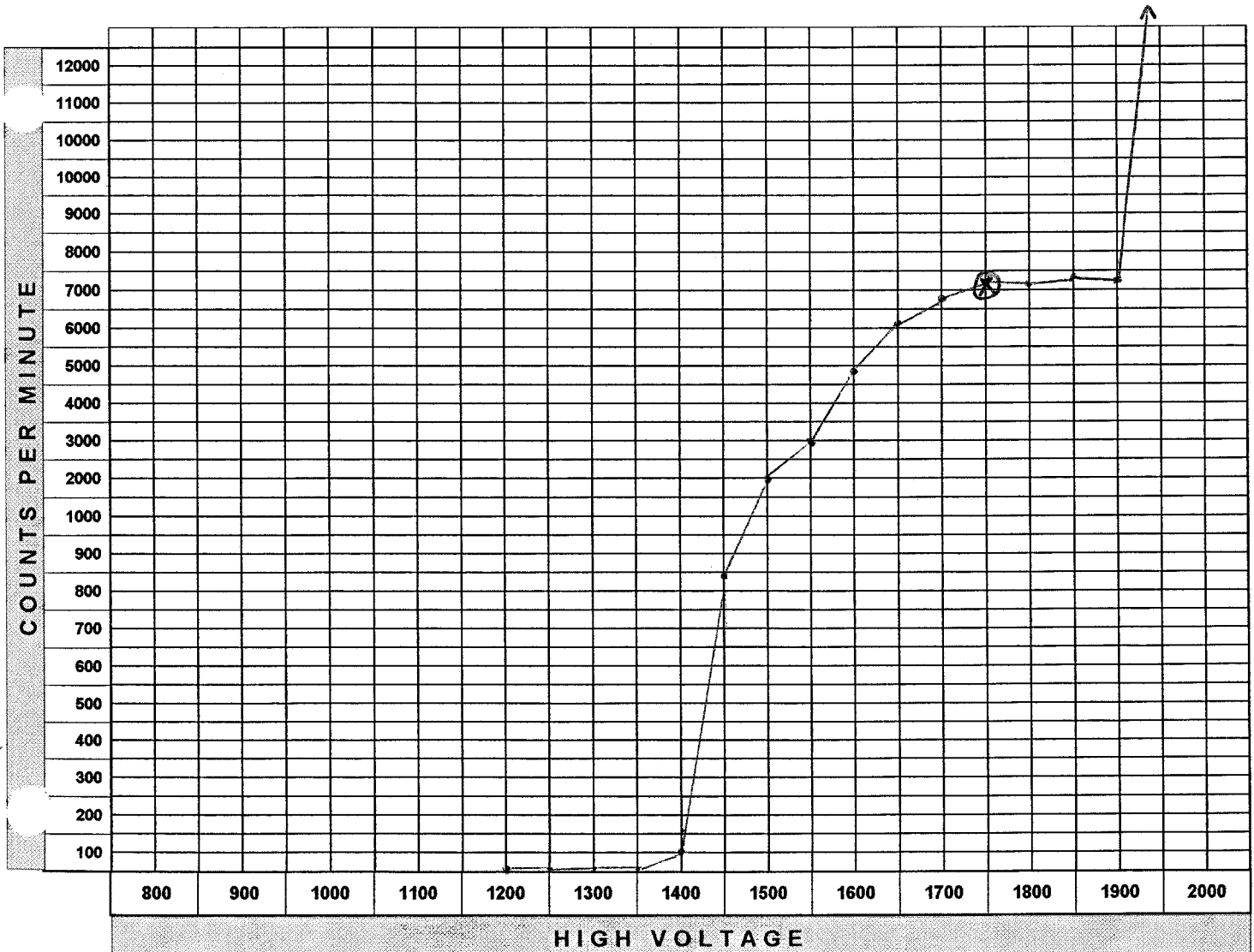
|                |   |
|----------------|---|
| CALIBRATED BY: | Larry Smith   |
| SIGNATURE:     |  |

|       |         |
|-------|---------|
| DATE: | 2-21-94 |
|-------|---------|

|           |  |
|-----------|--|
| COMMENTS: | DO NOT USE LONGER THAN 4 HOURS WITHOUT RECHARGING GAS. |
|-----------|--|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | ---    | 1250         | 7      | 1650         | 6090   |
| 900          | ---    | 1300         | 6      | 1700         | 6740   |
| 950          | ---    | 1350         | 10     | 1750         | 7180   |
| 1000         | ---    | 1400         | 107    | 1800         | 7100   |
| 1050         | ---    | 1450         | 842    | 1850         | 7320   |
| 1100         | ---    | 1500         | 1970   | 1900         | 7210   |
| 1150         | ---    | 1550         | 3490   | 1950         | 15400  |
| 1200         | 6      | 1600         | 4900   | 2000         | ---    |



|            |      |                  |    |       |          |
|------------|------|------------------|----|-------|----------|
| ESP-2 S/N: | 1601 | INSTRUMENT CODE: | 13 | DATE: | 11/17/93 |
|------------|------|------------------|----|-------|----------|

|               |      |
|---------------|------|
| ALPHA / BETA: | BETA |
|---------------|------|

| EFFICIENCY DATA: (Net cpm / dpm = Efficiency) (Correction Factor = 1 / Efficiency) |                   |                 |                      |                              |                            |         |
|--|-------------------|-----------------|----------------------|------------------------------|----------------------------|---------|
| SOURCE #   | ACTIVITY<br>- dpm | TOTAL<br>COUNTS | TIME<br>(in minutes) | GROSS CPM<br>(Total / # min) | BKG cpm<br>(Total / # min) | NET cpm |
| 763-84   | 18699             | 35700           | 5                    | 7140                         | 256                        | 6887    |
| 764.84   | 145996            | 281000          | 5                    | 56200                        | 256                        | 55944   |
|  | BACKGROUND        | 1280            | 5                    |                              |                            |         |

| NET cpm | EFFICIENCY | CORRECTION<br>FACTOR | AVERAGE EFFICIENCY | AVERAGE CORRECTION<br>FACTOR |
|---------|------------|----------------------|--------------------|------------------------------|
| 6884    | 36.8%      | 2.7                  | <b>37.5</b>        | <b>2.67</b>                  |
| 55944   | 38.3%      | 2.6                  |                    |                              |

|               |      |
|---------------|------|
| HIGH VOLTAGE: | 1750 |
|---------------|------|

| GAS DECAY CALIBRATION WITH 100 cm2 PROBE |        |                                |                            |        |                                |
|--|--------|--------------------------------|----------------------------|--------|--------------------------------|
| ELAPSED TIME<br>(in hours)               | COUNTS | PERCENT<br>(of original count) | ELAPSED TIME<br>(in hours) | COUNTS | PERCENT<br>(of original count) |
| INITIAL                                  | 56100  |                                | 3 HOURS                    | 56300  | 100.3                          |
| 1 HOUR                                   | 56600  | 100.8                          | 3.5 HOURS                  | 56500  | 100.7                          |
| 1.5 HOURS                                | 56200  | 100.1                          | 4 HOURS                    | 56900  | 101.4                          |
| 2 HOURS                                  | 56400  | 100.5                          | 4.5 HOURS                  | 56200  | 100.1                          |
| 2.5 HOURS                                | 56800  | 101.2                          | 5 HOURS                    | 56800  | 101.2                          |

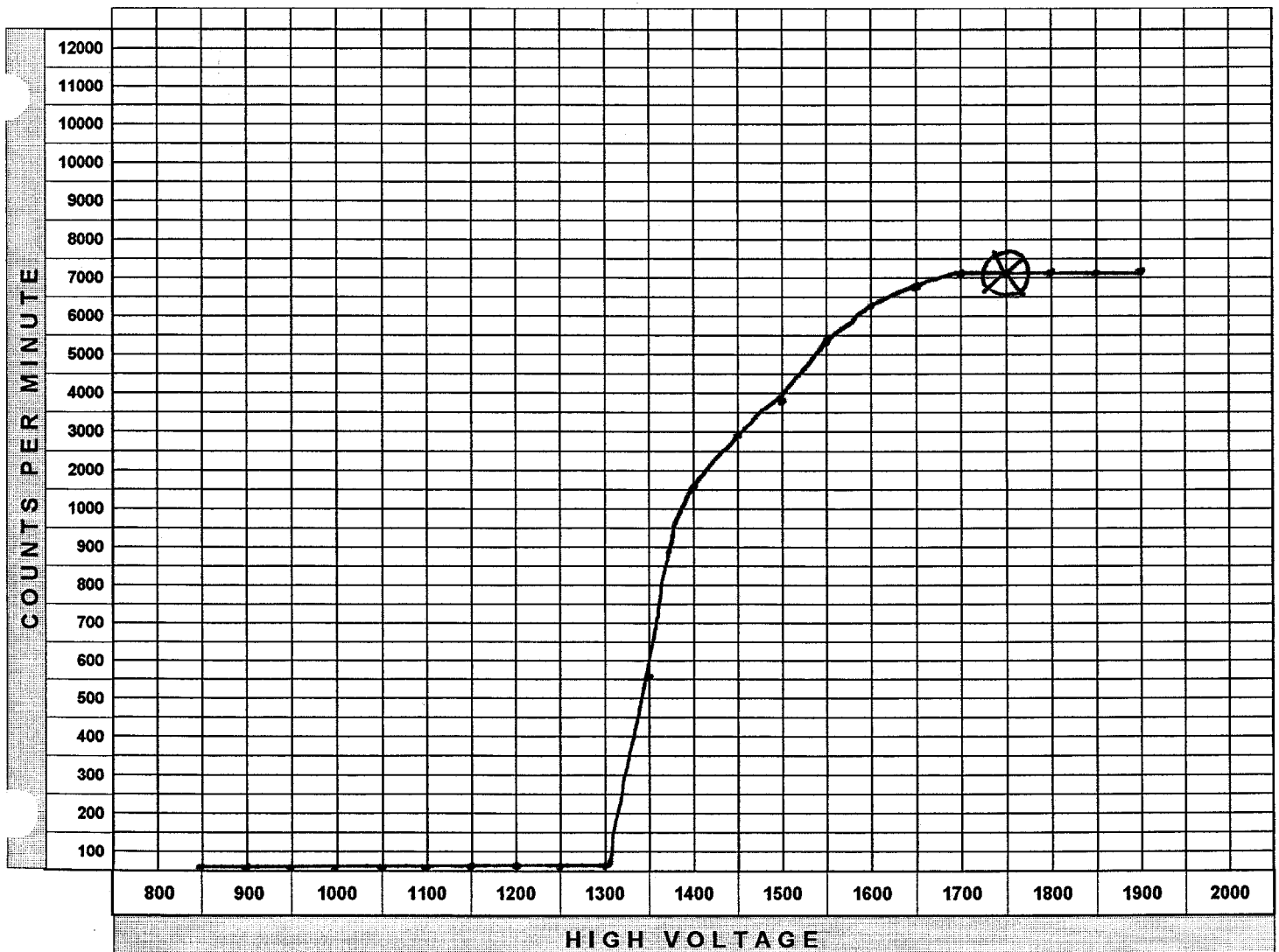
|                |                           |
|----------------|---------------------------|
| CALIBRATED BY: | M. Shaffer                |
| SIGNATURE:     | <i>Michael P. Shaffer</i> |

|       |          |
|-------|----------|
| DATE: | 11/17/93 |
|-------|----------|

|           |  |
|-----------|--|
| COMMENTS: |  |
|-----------|--|

ALPHA / BETA: BETA

| HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS | HIGH VOLTAGE | COUNTS |
|--------------|--------|--------------|--------|--------------|--------|
| 850          | 0      | 1250         | 8      | 1650         | 6870   |
| 900          | 2      | 1300         | 26     | 1700         | 7160   |
| 950          | 4      | 1350         | 554    | 1750         | 7100   |
| 1000         | 4      | 1400         | 1510   | 1800         | 7170   |
| 1050         | 6      | 1450         | 2590   | 1850         | 7180   |
| 1100         | 6      | 1500         | 3760   | 1900         | 7170   |
| 1150         | 10     | 1550         | 5340   | 1950         | N/A    |
| 1200         | 13     | 1600         | 6390   | 2000         | N/A    |





|                 |            |               |
|-----------------|------------|---------------|
| ESP-2 S/N: 1601 | CODE #: 13 | DATE: 8/19/93 |
|-----------------|------------|---------------|

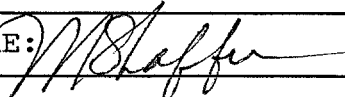
PLATEAU DATA

| ALPHA |     |      |     | BETA |      |      |      |
|-------|-----|------|-----|------|------|------|------|
| HV    | CTS | HV   | CTS | HV   | CTS  | HV   | CTS  |
| 850   |     | 1250 |     | 1150 | 7    | 1550 | 4990 |
| 900   |     | 1300 |     | 1200 | 12   | 1600 | 6190 |
| 950   |     | 1350 |     | 1250 | 4    | 1650 | 6820 |
| 1000  | →   | 1400 |     | 1300 | 13   | 1700 | 7170 |
| 1050  |     | 1450 |     | 1350 | 366  | 1750 | 7000 |
| 1100  |     | 1500 |     | 1400 | 1220 | 1800 | 7200 |
| 1150  |     | 1550 |     | 1450 | 2400 | 1850 | 7190 |
| 1200  |     | 1600 |     | 1500 | 3600 | 1900 | 7320 |

PLATEAU PLOT



| ESP-2 S/N: 1601   |            | CODE #: 13 |             |                            | DATE: 8/19/93 |         |
|---|------------|------------|-------------|----------------------------|---------------|---------|
| ALPHA EFFICIENCY DATA (Net cpm / dpm = Eff) (Correction Factor = 1 / Eff) |            |            |             |                            |               |         |
| SOURCE #  | ACTIVITY   | TOTAL CTS  | TIME        | GROSS CPM                  | BKG. CPM      | NET CPM |
|   | dpm        |            | min         |                            |               |         |
|   | dpm        |            | min         |                            |               |         |
| NET CPM   | EFF        | C.F.       | AVERAGE EFF |                            | AVERAGE C.F.  |         |
|   |            |            |             |                            |               |         |
|   |            |            |             |                            |               |         |
| BETA EFFICIENCY DATA (Net cpm / dpm = Eff) (Correction Factor = 1 / Eff)  |            |            |             |                            |               |         |
| SOURCE #  | ACTIVITY   | TOTAL CTS  | TIME        | GROSS CPM                  | BKG. CPM      | NET CPM |
| 763-84  | 18699 dpm  | 35700      | 5 min       | 7140                       | 308           | 6832    |
| 764-84  | 145996 dpm | 281000     | 5 min       | 56200                      | 308           | 55892   |
| NET CPM   | EFF        | C.F.       | AVERAGE EFF |                            | AVERAGE C.F.  |         |
| 6832  | 36.5%      | 2.7        | 37.4%       |                            | 2.65          |         |
| 55892   | 38.2%      | 2.6        |             |                            |               |         |
| GAS DECAY CALIBRATION   |            |            |             |                            |               |         |
| TIME  | CPM        | PERCENT    | TIME        | CPM                        | PERCENT       |         |
| INITIAL   | 7120       | 100.0%     | 3.0 HOURS   | 7220                       | 101.4%        |         |
| 1.0 HOUR  | 7150       | 100.4%     | 3.5 HOURS   | 7210                       | 101.2%        |         |
| 1.5 HOURS   | 7180       | 100.8%     | 4.0 HOURS   | 7190                       | 100.9%        |         |
| 2.0 HOURS   | 7170       | 100.7%     | 4.5 HOURS   | 7120                       | 100.0%        |         |
| 2.5 HOURS   | 7200       | 101.1%     | 5.0 HOURS   | 7220                       | 101.4%        |         |
| DETECTOR DATA   |            |            |             |                            |               |         |
| ALPHA - HP 100A DETECTOR  |            |            |             | BETA - HP 100A DETECTOR    |               |         |
| HIGH VOLTAGE SETTING:   |            |            |             | HIGH VOLTAGE SETTING: 1750 |               |         |
| CC:   |            |            |             | CC: 1.00 E+00              |               |         |
| DT:   |            |            |             | DT: 1.00 E-06              |               |         |
| ALARM:  |            |            |             | ALARM: 1.00 E+00           |               |         |

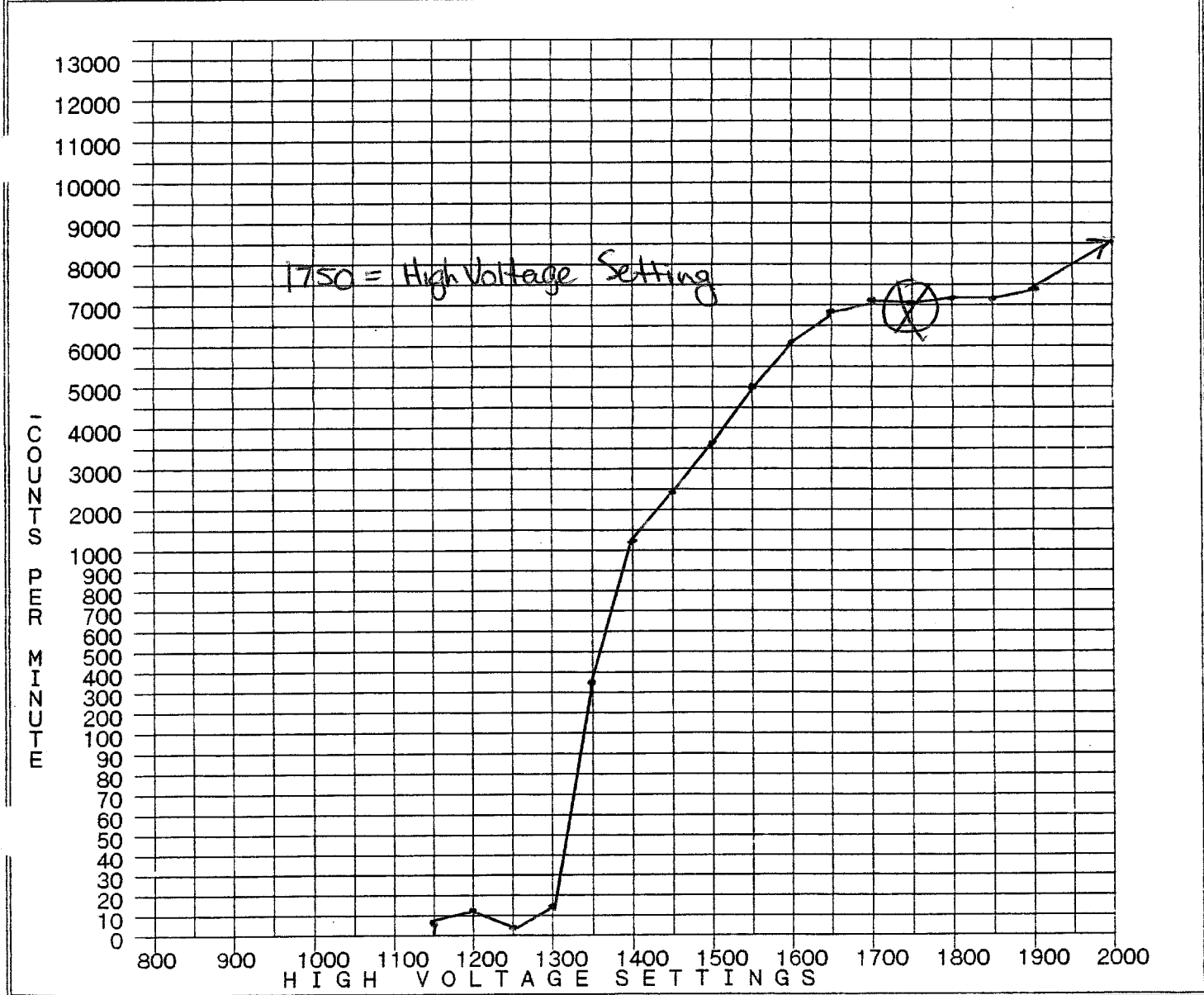
CALIBRATED BY: M.Shaffer / L.Smith      SIGNATURE: 

ESP-2 S/N: 1601      TAB #: 13      DATE: 8-19-93

PLATEAU DATA

| ALPHA |     |      |     | BETA |      |      |      |
|-------|-----|------|-----|------|------|------|------|
| HV    | CTS | HV   | CTS | HV   | CTS  | HV   | CTS  |
| 850   |     | 1250 |     | 1150 | 7    | 1550 | 4990 |
| 900   |     | 1300 |     | 1200 | 12   | 1600 | 6190 |
| 950   |     | 1350 |     | 1250 | 4    | 1650 | 6820 |
| 1000  |     | 1400 |     | 1300 | 13   | 1700 | 7170 |
| 1050  |     | 1450 |     | 1350 | 366  | 1750 | 7000 |
| 1100  |     | 1500 |     | 1400 | 1220 | 1800 | 7200 |
| 1150  |     | 1550 |     | 1450 | 2400 | 1850 | 7190 |
| 1200  |     | 1600 |     | 1500 | 3600 | 1900 | 7320 |

PLATEAU PLOT



ESP-2 S/N: 1601      TAB #: 13      DATE: 8-19-93

ALPHA EFFICIENCY DATA (Net cpm / dpm = Eff)(Correction Factor = 1 / Eff)

| SOURCE # | ACTIVITY | TOTAL CTS | TIME        | GROSS CPM | BKG. CPM     | NET CPM |
|----------|----------|-----------|-------------|-----------|--------------|---------|
|          | dpm      |           | min         |           |              |         |
|          | dpm      |           | min         | X         | 300          |         |
| NET CPM  | EFF      | C.F.      | AVERAGE EFF |           | AVERAGE C.F. |         |
|          |          |           |             |           |              |         |

BETA EFFICIENCY DATA (Net cpm / dpm = Eff)(Correction Factor = 1 / Eff)

| SOURCE # | ACTIVITY    | TOTAL CTS | TIME        | GROSS CPM | BKG. CPM     | NET CPM |
|----------|-------------|-----------|-------------|-----------|--------------|---------|
| 763-84   | 18,699 dpm  | 35,700    | 5 min       | 7140      | 308          | 6832    |
| 764-84   | 145,996 dpm | 281,000   | 5 min       | 56,200    | 308          | 55,892  |
| NET CPM  | EFF         | C.F.      | AVERAGE EFF |           | AVERAGE C.F. |         |
| 6832     | 36.5%       | 2.7       | 37.4%       |           | 2.65         |         |
| 55,892   | 38.2%       | 2.6       |             |           |              |         |

GAS DECAY CALIBRATION

| TIME      | CPM  | PERCENT   | TIME      | CPM  | PERCENT |
|-----------|------|-----------|-----------|------|---------|
| INITIAL   | 7120 | 0945 100% | 3.0 HOURS | 7220 | 101.4%  |
| 1.0 HOUR  | 7150 | 100.4%    | 3.5 HOURS | 7210 | 101.2%  |
| 1.5 HOURS | 7180 | 100.8%    | 4.0 HOURS | 7190 | 100.9%  |
| 2.0 HOURS | 7170 | 100.7%    | 4.5 HOURS | 7120 | 100%    |
| 2.5 HOURS | 7200 | 101.1%    | 5.0 HOURS | 7220 | 101.4%  |

DETECTOR DATA

| ALPHA - HP 100A DETECTOR | BETA - HP 100A DETECTOR           |
|--------------------------|-----------------------------------|
| HIGH VOLTAGE SETTING:    | HIGH VOLTAGE SETTING: <u>1750</u> |
| CC:                      | CC: <u>1.00 E 0</u>               |
| DT:                      | DT: <u>1.00 E -6</u>              |
| ALARM:                   | ALARM: <u>1.00 E 6</u>            |

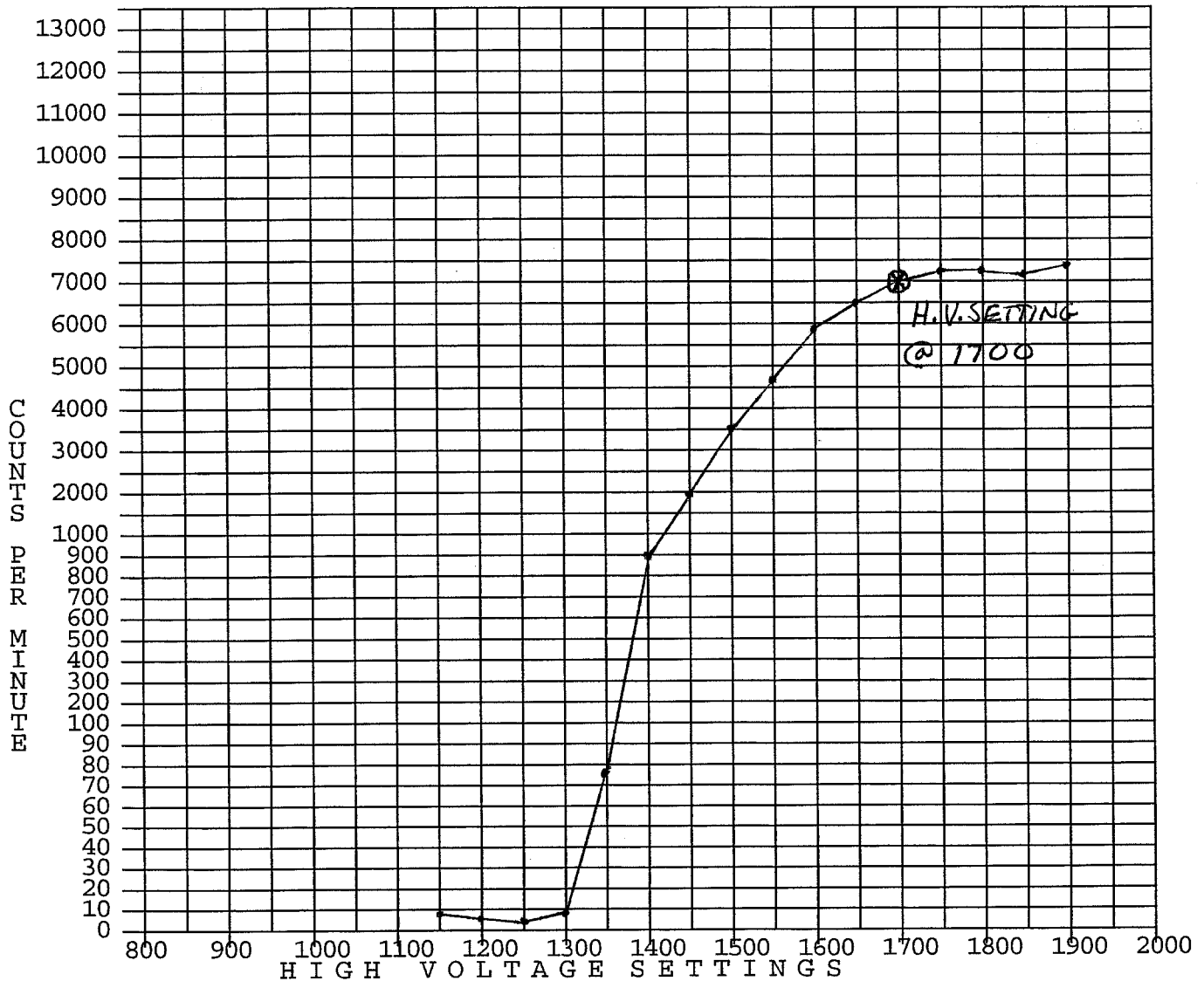
CALIBRATED BY: M. Shaffer      SIGNATURE: M. Shaffer  
6/1/93      8/19/93

ESP-2 SERIAL # *1601*      ~~TAB #:~~ *11* *Code 13*      DATE: 5/27/93

PLATEAU DATA

| ALPHA |     |      |     | BETA |      |      |      |
|-------|-----|------|-----|------|------|------|------|
| HV    | CTS | HV   | CTS | HV   | CTS  | HV   | CTS  |
| 850   |     | 1250 |     | 1150 | 9    | 1550 | 4610 |
| 900   |     | 1300 |     | 1200 | 6    | 1600 | 5900 |
| 950   |     | 1350 |     | 1250 | 3    | 1650 | 6530 |
| 1000  |     | 1400 |     | 1300 | 9    | 1700 | 7020 |
| 1050  |     | 1450 |     | 1350 | 77   | 1750 | 7210 |
| 1100  |     | 1500 |     | 1400 | 896  | 1800 | 7200 |
| 1150  |     | 1550 |     | 1450 | 1940 | 1850 | 7100 |
| 1200  |     | 1600 |     | 1500 | 3550 | 1900 | 7320 |

PLATEAU PLOT



|                     |                                    |               |
|---------------------|------------------------------------|---------------|
| ESP-2 SERIAL # 1601 | TAB # <del>11</del> <i>CODE 13</i> | DATE: 5/27/93 |
|---------------------|------------------------------------|---------------|

| ALPHA EFFICIENCY DATA (Net cpm / dpm = Eff)(Correction Factor = 1 / Eff) |          |           |             |           |              |         |
|--|----------|-----------|-------------|-----------|--------------|---------|
| SOURCE #   | ACTIVITY | TOTAL CTS | TIME        | GROSS CPM | BKG. CPM     | NET CPM |
|  | dpm      |           | min         |           |              |         |
|  | dpm      |           | min         |           |              |         |
| NET CPM  | EFF      | C.F.      | AVERAGE EFF |           | AVERAGE C.F. |         |
|  |          |           |             |           |              |         |
|  |          |           |             |           |              |         |

| BETA EFFICIENCY DATA (Net cpm / dpm = Eff)(Correction Factor = 1 / Eff) |            |           |             |           |              |         |
|---|------------|-----------|-------------|-----------|--------------|---------|
| SOURCE #  | ACTIVITY   | TOTAL CTS | TIME        | GROSS CPM | BKG. CPM     | NET CPM |
| 763/84  | 18700 dpm  | 35100     | 5 min       | 7020      | 300          | 6720    |
| 764/84  | 146000 dpm | 175000    | 5 min       | 55000     | 300          | 54700   |
| NET CPM   | EFF        | C.F.      | AVERAGE EFF |           | AVERAGE C.F. |         |
| 6720  | 35.9 %     | 2.78      | 36.8 %      |           | 2.72         |         |
| 54700   | 37.7 %     | 2.65      |             |           |              |         |

| (Check Source #1256-C) GAS DECAY CALIBRATION |      |         |           |      |         |
|--|------|---------|-----------|------|---------|
| TIME   | CPM  | PERCENT | TIME      | CPM  | PERCENT |
| INITIAL                                      | 5030 | 100.0%  | 3.0 HOURS | 4910 | 97.6%   |
| 1.0 HOUR                                     | 5000 | 99.4%   | 3.5 HOURS |      |         |
| 1.5 HOURS                                    | 5010 | 99.6%   | 4.0 HOURS |      |         |
| 2.0 HOURS                                    | 4950 | 98.4%   | 4.5 HOURS |      |         |
| 2.5 HOURS                                    | 4860 | 96.6%   | 5.0 HOURS |      |         |

| DETECTOR DATA         |                 |                |
|-----------------------|-----------------|----------------|
|                       | ALPHA - HP 100A | BETA - HP 100A |
| HIGH VOLTAGE SETTING: |                 | 1700           |
| CC:                   |                 | 1.00 E +00     |
| DT:                   |                 | 1.00 E -06     |
| ALARM:                |                 | not set        |

|                            |                               |
|----------------------------|-------------------------------|
| CALIBRATED BY: Larry Smith | SIGNATURE: <i>Larry Smith</i> |
|----------------------------|-------------------------------|

**CODE NUMBER 14**

**REPORT #001**



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 724/733-1900 Fax: 724/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                 | INSTRUMENT INFORMATION                        |
|--------------------------------------|---|
| Customer Name: <u>Westinghouse</u>   | Instrument Manufacturer <u>Eberline</u>       |
| Customer Address: <u>PO Box 3700</u> | Model <u>E-520</u> Serial Number <u>4195</u>  |
| <u>Pittsburgh, PA 15230</u>          | External Probe(s) <u>HP270</u> Serial # _____ |
| Customer P.O.# _____                 | Calibration Method <u>137 Pulsar s/n 301</u>  |
| Work Order # <u>I-99-03-208</u>      | <u>Cs s/n 10263 200mCi</u>                    |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X.01           | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 160                 | 160          | Battery: OK                     |
| 4                |                            |                     |              |                                 |
| 5 XO.1           | 0.5 mR/hr                  | 0.8 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
|                  | 1                          | 1.6                 | 1            |                                 |
|                  | 1.5                        | Off Scale           | 1.45         | Reset: OK                       |
| 8                |                            |                     |              |                                 |
| 9 X1             | 5                          | 6                   | 5            | Response: OK                    |
| 10               | 10                         | 12                  | 10           |                                 |
| 11               | 15                         | 17                  | 14.5         | Audio: OK                       |
| 12               |                            |                     |              |                                 |
| 13 X10           | 50                         | 60                  | 55           |                                 |
| 14               | 100                        | 110                 | 100          |                                 |
| 15               | 150                        | 150                 | 138          |                                 |
| 16               |                            |                     |              |                                 |
| 17 X100          | 500                        | 500                 | 500          |                                 |
| 18               | 1,000                      | 1,025               | 1,025        |                                 |
| 19               | 1,500                      | 1,550               | 1,550        |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>William Owen</u><br><small>(Signed)</small> | I certify that the above information is correct: |
| Calibration Date: <u>03-24-99</u>  | <u>03-24-99</u>                                  |
| Next Calibration Due: <u>06-24-99</u>                                    | <u>Administrative Coordinator</u> Date:          |





**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 724/733-1900 Fax: 724/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |   |
|----------------------|---|-------------------------|---|
| Customer Name:       | <u>Westinghouse</u>                               | Instrument Manufacturer | <u>Eberline</u>   |
| Customer Address:    | <u>PO Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>E-520</u> Serial Number <u>4195</u>                            |
| Customer P.O.#       | <u>MB-14027-S</u>                                 | External Probe(s)       | <u>HP270</u> Serial # _____                                       |
| Work Order #         | <u>I-98-12-208</u>                                | Calibration Method      | <u>137</u> <u>Pulser s/n 101500</u><br><u>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X.01             | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2  |                  | 80                         | 80                  | 80           |                                 |
| 3  |                  | 160                        | 160                 | 160          | Battery: OK                     |
| 4  |                  |                            |                     |              |                                 |
| 5  | X0.1             | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6  |                  | 1                          | 1                   | 1            |                                 |
| 7  |                  | 1.5                        | 1.5                 | 1.5          | Response: OK                    |
| 8  |                  |                            |                     |              |                                 |
| 9  | X1               | 5                          | 5.5                 | 5            | Reset: OK                       |
| 10 |                  | 10                         | 11                  | 10           |                                 |
| 11 |                  | 15                         | 16.5                | 15           | Speaker: OK                     |
| 12 |                  |                            |                     |              |                                 |
| 13 | X10              | 50                         | 55                  | 55           |                                 |
| 14 |                  | 100                        | 100                 | 100          |                                 |
| 15 |                  | 150                        | 138                 | 138          |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 | X100             | 500                        | 500                 | 500          |                                 |
| 18 |                  | 1,000                      | 1,020               | 1,020        |                                 |
| 19 |                  | 1,500                      | 1,550               | 1,550        |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: [Signature]  
 Calibration Date: 12-17-98  
 Next Calibration Due: 03-17-99

I certify that the above information is correct:  
[Signature]  
 Administrative Coordinator  
 Date: 12-17-98



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

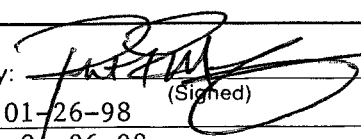
| CUSTOMER INFORMATION |                                     | INSTRUMENT INFORMATION  |                       |
|----------------------|-------------------------------------|-------------------------|-----------------------|
| Customer Name:       | Westinghouse                        | Instrument Manufacturer | Eberline              |
| Customer Address:    | PO Box 3700<br>Pittsburgh, PA 15230 | Model                   | E-520                 |
|                      |                                     | Serial Number           | 4195                  |
|                      |                                     | External Probe(s)       | HP270                 |
| Customer P.O.#       | MB-14027-S                          | Calibration Method      | 137 Pulser s/n 101500 |
| Work Order #         | I-98-01-208                         |                         | Cs s/n 101500         |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X.01           | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 160                 | 160          | Battery: OK                     |
| 4                |                            |                     |              |                                 |
| 5 X0.1           | 0.5 mR/hr                  | 0.6 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6                | 1                          | 1.2                 | 1            |                                 |
| 7                | 1.5                        | 1.8                 | 1.5          | Response: OK                    |
| 8                |                            |                     |              |                                 |
| 9 X1             | 5                          | 5.5                 | 5            | Reset: OK                       |
| 10               | 10                         | 11                  | 10           |                                 |
| 11               | 15                         | 16.5                | 15           | Speaker: OK                     |
| 12               |                            |                     |              |                                 |
| 13 X10           | 50                         | 50                  | 55           |                                 |
| 14               | 100                        | 90                  | 100          |                                 |
| 15               | 150                        | 128                 | 138          |                                 |
| 16               |                            |                     |              |                                 |
| 17 X100          | 500                        | 500                 | 500          |                                 |
| 18               | 1,000                      | 1,020               | 1,020        |                                 |
| 19               | 1,500                      | 1,550               | 1,550        |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|                           |   |  |          |
|---------------------------|---|--|----------|
| Instrument Calibrated by: |  | I certify that the above information is correct: |          |
| Calibration Date:         | 01-26-98  | Administrative Coordinator                       | 01-26-98 |
| Next Calibration Due:     | 04-26-98  |  | Date     |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                 | INSTRUMENT INFORMATION                                 |
|--------------------------------------|--|
| Customer Name: <u>Westinghouse</u>   | Instrument Manufacturer <u>Eberline</u>                |
| Customer Address: <u>PO Box 3700</u> | Model <u>E-520</u> Serial Number <u>4195</u>           |
| <u>Pittsburgh, PA 15230</u>          | External Probe(s) <u>HP270</u> Serial # _____          |
| Customer P.O.# <u>MB-14027-S</u>     | Calibration Method <u>137</u> <u>Pulser s/n 101500</u> |
| Work Order # <u>I-98-04-208</u>      | <u>Cs s/n 10263 200mCi</u>                             |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X.01           | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           | Battery: OK                     |
| 3                | 160                        | 160                 | 160          |                                 |
| 4 X0.1           | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 5                | 1                          | 1                   | 1            | Response: OK                    |
| 6                | 1.5                        | 1.5                 | 1.5          |                                 |
| 7                |                            |                     |              |                                 |
| 8 X1             | 5                          | 5                   | 5            | Reset: OK                       |
| 9                | 10                         | 10                  | 10           |                                 |
| 10               | 15                         | 14.5                | 14.5         | Speaker: OK                     |
| 11               |                            |                     |              |                                 |
| 12 X10           | 50                         | 55                  | 55           |                                 |
| 13               | 100                        | 98                  | 98           |                                 |
| 14               | 150                        | 135                 | 135          |                                 |
| 15               |                            |                     |              |                                 |
| 16 X100          | 500                        | 500                 | 500          |                                 |
| 17               | 1,000                      | 1,000               | 1,000        |                                 |
| 18               | 1,500                      | 1,500               | 1,500        |                                 |
| 19               |                            |                     |              |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u> | I certify that the above information is correct: |
| Calibration Date: <u>05-11-98</u> (Signed)   | <u>[Signature]</u> 05-11-98                      |
| Next Calibration Due: <u>08-11-98</u>        | Administrative Coordinator Date                  |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |                                     | INSTRUMENT INFORMATION  |   |
|----------------------|-------------------------------------|-------------------------|---|
| Customer Name:       | Westinghouse                        | Instrument Manufacturer | Eberline  |
| Customer Address:    | PO Box 3700<br>Pittsburgh, PA 15230 | Model                   | E-520   |
|                      |                                     | Serial Number           | 4195  |
|                      |                                     | External Probe(s)       | HP270   |
| Customer P.O.#       | MB14027-S                           | Serial #                |   |
| Work Order #         | I-98-09-208                         | Calibration Method      | <sup>137</sup> Pulser s/n 101500<br>Cs s/n 10263 200mCi |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X.01           | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 160                 | 160          | Battery: OK                     |
| 4                |                            |                     |              |                                 |
| 5 X0.1           | 0.5 mR/hr                  | 0.55 mR/hr          | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6                | 1                          | 1.10                | 1            |                                 |
| 7                | 1.5                        | 1.65                | 1.5          | Response: OK                    |
| 8                |                            |                     |              |                                 |
| 9 X1             | 5                          | 5                   | 5            | Reset: OK                       |
| 10               | 10                         | 10                  | 10           |                                 |
| 11               | 15                         | 15                  | 15           | Speaker: OK                     |
| 12               |                            |                     |              |                                 |
| 13 X10           | 50                         | 55                  | 55           |                                 |
| 14               | 100                        | 100                 | 100          |                                 |
| 15               | 150                        | 138                 | 138          |                                 |
| 16               |                            |                     |              |                                 |
| 17 X100          | 500                        | 500                 | 500          |                                 |
| 18               | 1,000                      | 1,000               | 1,000        |                                 |
| 19               | 1,500                      | 1,500               | 1,500        |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: [Signature]  
 Calibration Date: 09-14-98 (Signed)  
 Next Calibration Due: 12-14-98

I certify that the above information is correct:  
[Signature]  
 Administrative Coordinator Date 09-14-98





**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   |   | INSTRUMENT INFORMATION     |                           |
|--|---|----------------------------|---------------------------|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer <u>Eberline</u> | Model <u>E-520</u>         | Serial Number <u>4195</u> |
| Customer Address: <u>P.O. Box 3700</u> | External Probe(s) <u>HP270</u>          | Serial # _____             |                           |
| <u>Pittsburgh, PA 15230</u>            |   |                            |                           |
| Customer P.O.# <u>MB-14027-S</u>       | Calibration Method <u>137</u>           | <u>Pulser s/n 101500</u>   |                           |
| Work Order # <u>I-97-05-209</u>        |   | <u>Cs s/n 10263 200mCi</u> |                           |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X.01           | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 160                 | 160          | Battery: OK                     |
| 4                |                            |                     |              |                                 |
| 5 X0.1           | 0.5 mR/hr                  | 0.55 mR/hr          | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6                | 1                          | 1.1                 | 1            |                                 |
| 7                | 1.5                        | 1.65                | 1.5          | Response: OK                    |
| 8                |                            |                     |              |                                 |
| 9 XI             | 5                          | 5                   | 5            | Reset: OK                       |
| 10               | 10                         | 9.8                 | 9.8          |                                 |
| 11               | 15                         | 14.5                | 14.5         | Speaker: OK                     |
| 12               |                            |                     |              |                                 |
| 13 X10           | 50                         | 55                  | 55           |                                 |
| 14               | 100                        | 100                 | 100          |                                 |
| 15               | 150                        | 138                 | 138          |                                 |
| 16               |                            |                     |              |                                 |
| 17 X100          | 500                        | 500                 | 500          |                                 |
| 18               | 1,000                      | 1,000               | 1,000        |                                 |
| 19               | 1,500                      | 1,500               | 1,500        |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u> | I certify that the above information is correct: |
| Calibration Date: <u>05-20-97</u> (Signed)   | <u>[Signature]</u> 05-20-97                      |
| Next Calibration Due: <u>08-20-97</u>        | Administrative Coordinator Date                  |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   | INSTRUMENT INFORMATION                                 |
|--|--|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer <u>Eberline</u>                |
| Customer Address: <u>P.O. Box 3700</u> | Model <u>E-520</u> Serial Number <u>4195</u>           |
| <u>Pittsburgh, PA 15230</u>            | External Probe(s) <u>HP270</u> Serial # _____          |
| Customer P.O.# <u>MB-14027-S</u>       | Calibration Method <u>137</u> <u>Pulser s/n 101500</u> |
| Work Order # <u>I-97-02-209</u>        | <u>Cs s/n 10263 200mCi</u>                             |

### INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X.01           | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 160                 | 160          | Battery: OK                     |
| 4                |                            |                     |              |                                 |
| 5 X0.1           | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6                | 1                          | 1                   | 1            |                                 |
| 7                | 1.5                        | 1.5                 | 1.5          | Response: OK                    |
| 8                |                            |                     |              |                                 |
| 9 X1             | 5                          | 5                   | 5            | Reset: OK                       |
| 10               | 10                         | 10                  | 10           |                                 |
| 11               | 15                         | 15                  | 15           | Audio: OK                       |
| 12               |                            |                     |              |                                 |
| 13 X10           | 50                         | 52                  | 55           |                                 |
| 14               | 100                        | 95                  | 100          |                                 |
| 15               | 150                        | 130                 | 135          |                                 |
| 16               |                            |                     |              |                                 |
| 17 X100          | 500                        | 520                 | 500          |                                 |
| 18               | 1,000                      | 1,050               | 1,000        |                                 |
| 19               | 1,500                      | 1,580               | 1,500        |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: [Signature]  
 (Signed)  
 Calibration Date: 02-03-97  
 Next Calibration Due: 05-03-97

I certify that the above information is correct:  
[Signature]  
 Administrative Coordinator  
 Date 02-03-97



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |   |
|----------------------|---|-------------------------|---|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>   |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>E-520</u> Serial Number <u>4195</u>                            |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | <u>HP270</u> Serial # _____                                       |
| Work Order #         | <u>I-96-11-208</u>                                  | Calibration Method      | <u>137</u> <u>Pulser s/n 101500</u><br><u>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X.01           | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 160                 | 160          | Battery: OK                     |
| 4 X0.1           | 0.5 mR/hr                  | 0.55 mR/hr          | 0.5 mR/hr    | Mechanical Zero: OK             |
| 5                | 1                          | 1.10                | 1            |                                 |
| 6                | 1.5                        | 1.65                | 1.5          | Response: OK                    |
| 7                |                            |                     |              |                                 |
| 8 X1             | 5                          | 5.8                 | 5            | Reset: OK                       |
| 9                | 10                         | 11.5                | 10           |                                 |
| 10               | 15                         | 17                  | 15           | Speaker: OK                     |
| 11               |                            |                     |              |                                 |
| 12 X10           | 50                         | 52                  | 52           |                                 |
| 13               | 100                        | 100                 | 100          |                                 |
| 14               | 150                        | 135                 | 135          |                                 |
| 15               |                            |                     |              |                                 |
| 16 X100          | 500                        | 520                 | 520          |                                 |
| 17               | 1,000                      | 1,000               | 1,000        |                                 |
| 18               | 1,500                      | 1,500               | 1,500        |                                 |
| 19               |                            |                     |              |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|                           |                                |  |                         |
|---------------------------|--------------------------------|--|-------------------------|
| Instrument Calibrated by: | <u>[Signature]</u><br>(Signed) | I certify that the above information is correct: | <u>[Signature]</u>      |
| Calibration Date:         | <u>11-04-96</u>                | Administrative Coordinator                       | <u>11-04-96</u><br>Date |
| Next Calibration Due:     | <u>02-04-97</u>                |  |                         |





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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |   |
|----------------------|---|-------------------------|---|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>   |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15221</u> | Model                   | <u>E-520</u> Serial Number <u>4195</u>                            |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | <u>HP270</u> Serial # _____                                       |
| Work Order #         | <u>I-96-06-209</u>                                  | Calibration Method      | <u>137</u> <u>Pulser s/n 120935</u><br><u>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X.01           | 40 CPM                     | 42 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 85                  | 80           |                                 |
| 3                | 160                        | 170                 | 160          | Battery: OK                     |
| 4 X0.1           | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Response: OK                    |
| 5                | 1                          | 1                   | 1            |                                 |
| 6                | 1.5                        | 1.5                 | 1.5          | Reset: OK                       |
| 7                |                            |                     |              |                                 |
| 8 X1             | 5                          | 5.5                 | 5            | Speaker: OK                     |
| 9                | 10                         | 11                  | 10           |                                 |
| 10               | 15                         | 16.5                | 15           | Mechanical Zero: OK             |
| 11               |                            |                     |              |                                 |
| 12 X10           | 50                         | 55                  | 55           |                                 |
| 13               | 100                        | 100                 | 100          |                                 |
| 14               | 150                        | 135                 | 135          |                                 |
| 15               |                            |                     |              |                                 |
| 16 X100          | 500                        | 500                 | 500          |                                 |
| 17               | 1,000                      | 1,000               | 1,000        |                                 |
| 18               | 1,500                      | 1,500               | 1,500        |                                 |
| 19               |                            |                     |              |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>07-01-96</u>                        | <u>[Signature]</u> 07-01-96                      |
| Next Calibration Due: <u>01-01-97</u>                    | Administrative Coordinator Date                  |
| <u>16-1-96</u>   |  |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   | INSTRUMENT INFORMATION                                 |
|--|--|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer <u>Eberline</u>                |
| Customer Address: <u>P.O. Box 3700</u> | Model <u>E-520</u> Serial Number <u>4195</u>           |
| <u>Pittsburgh, PA 15230</u>            | External Probe(s) <u>HP270</u> Serial # _____          |
| Customer P.O.# <u>MB-14027-S</u>       | Calibration Method <u>137</u> <u>Pulser s/n I20935</u> |
| Work Order # <u>I-96-03-209</u>        | <u>Cs s/n 10263 200mCi</u>                             |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X.01           | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 160                 | 160          | Battery: OK                     |
| 4 X0.1           | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 5                | 1                          | 1                   | 1            |                                 |
| 6                | 1.5                        | 1.5                 | 1.5          | Response: OK                    |
| 7                |                            |                     |              |                                 |
| 8 X1             | 5                          | 5                   | 5            | Reset: OK                       |
| 9                | 10                         | 10                  | 10           |                                 |
| 10               | 15                         | 15                  | 15           | Speaker: OK                     |
| 11               |                            |                     |              |                                 |
| 12 X10           | 50                         | 55                  | 55           |                                 |
| 13               | 100                        | 100                 | 100          |                                 |
| 14               | 150                        | 135                 | 135          |                                 |
| 15               |                            |                     |              |                                 |
| 16 X100          | 500                        | 520                 | 500          |                                 |
| 17               | 1,000                      | 1,080               | 1,000        |                                 |
| 18               | 1,500                      | 1,620               | 1,500        |                                 |
| 19               |                            |                     |              |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>03-27-96</u>                        | <u>[Signature]</u> 03-27-96                      |
| Next Calibration Due: <u>06-27-96</u>                    | Administrative Coordinator Date                  |



GTS Instrument Services  
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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   | INSTRUMENT INFORMATION                        |
|--|---|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer <u>Eberline</u>       |
| Customer Address: <u>P.O. Box 3700</u> | Model <u>E-520</u> Serial Number <u>4195</u>  |
| <u>Pittsburgh, Pa 15221</u>            | External Probe(s) <u>SP270</u> Serial # _____ |
| Customer P.O.# <u>MS-14027-S</u>       | Calibration Method <u>Pulsar s/n 198</u>      |
| Work Order # <u>I-95-11-200</u>        | <u>27Cs s/n 10263 100mCi</u>                  |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X.01             | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btu. + & - 10% |
| 2  |                  | 80                         | 80                  | 80           |                                 |
| 3  |                  | 160                        | 160                 | 160          | Battery: OK                     |
| 4  |                  |                            |                     |              |                                 |
| 5  | X0.1             | 0.5 mR/hr                  | 0.5                 | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6  |                  | 1                          | 1                   | 1            |                                 |
| 7  |                  | 1.5                        | 1.5                 | 1.5          | Response: OK                    |
| 8  |                  |                            |                     |              |                                 |
| 9  | X1               | 5                          | 5                   | 5            | Reset: OK                       |
| 10 |                  | 10                         | 10                  | 10           |                                 |
| 11 |                  | 15                         | 15                  | 15           | Audio: OK                       |
| 12 |                  |                            |                     |              |                                 |
| 13 | X10              | 50                         | 55                  | 55           |                                 |
| 14 |                  | 100                        | 100                 | 100          |                                 |
| 15 |                  | 150                        | 138                 | 138          |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 | X100             | 500                        | 500                 | 500          |                                 |
| 18 |                  | 1,000                      | 1,000               | 1,000        |                                 |
| 19 |                  | 1,500                      | 1,500               | 1,500        |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u> | I certify that the above information is correct: |
| Calibration Date: <u>12-05-95</u> (Signed)   | <u>[Signature]</u> 12-05-95                      |
| Next Calibration Due: <u>03-05-96</u>        | Administrative Coordinator Date                  |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   | INSTRUMENT INFORMATION                                 |
|--|--|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer <u>Eberline</u>                |
| Customer Address: <u>P.O. Box 3700</u> | Model <u>E-520</u> Serial Number <u>4195</u>           |
| <u>Pittsburgh, PA 15230</u>            | External Probe(s) <u>HP270</u> Serial # _____          |
| Customer P.O.# <u>MB-14027-S</u>       | Calibration Method <u>137</u> <u>Pulser s/n 101500</u> |
| Work Order # <u>I-95-08-211</u>        | <u>Cs s/n 10263 200mCi</u>                             |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X.01           | 40 CPM                     | Repair<br>↓         | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         |                     | 80           |                                 |
| 3                | 160                        |                     | 160          | Battery: OK                     |
| 4 X0.1           | 0.5 mR/hr                  |                     | 0.5 mR/hr    | Mechanical Zero: OK             |
| 5                | 1                          |                     | 1            |                                 |
| 6                | 1.5                        |                     | 1.5          | Response: OK                    |
| 7                |                            |                     |              |                                 |
| 8 X1             | 5                          |                     | 5            | Reset: OK                       |
| 9                | 10                         |                     | 10           |                                 |
| 10               | 15                         |                     | 15           | Speaker: OK                     |
| 11               |                            |                     |              |                                 |
| 12 X10           | 50                         |                     | 55           |                                 |
| 13               | 100                        |                     | 100          |                                 |
| 14               | 150                        |                     | 135          |                                 |
| 15               |                            |                     |              |                                 |
| 16 X100          | 500                        |                     | 500          |                                 |
| 17               | 1,000                      |                     | 1,000        |                                 |
| 18               | 1,500                      |                     | 1,500        |                                 |
| 19               |                            |                     |              |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct:<br><u>[Signature]</u><br>Administrative Coordinator |
| Calibration Date: <u>08-24-95</u>                        | <u>08-24-95</u><br>Date  |
| Next Calibration Due: <u>11-24-95</u>                    |  |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |   |
|----------------------|---|-------------------------|---|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>   |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>E-520</u> Serial Number <u>4195</u>                            |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | <u>HP270</u> Serial # _____                                       |
| Work Order #         | <u>I-95-05-220</u>                                  | Calibration Method      | <u>137</u> <u>Pulser s/n 101500</u><br><u>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X0.01          | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 160                 | 160          | Battery Check: OK               |
| 4                |                            |                     |              |                                 |
| 5 X0.1           | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6                | 1                          | 1                   | 1            |                                 |
| 7                | 1.5                        | 1.5                 | 1.5          | Response: OK                    |
| 8                |                            |                     |              |                                 |
| 9 X1             | 5                          | 5.2                 | 5            | Reset: OK                       |
| 10               | 10                         | 10.5                | 10.5         |                                 |
| 11               | 15                         | 15.8                | 15.8         | Speaker: OK                     |
| 12               |                            |                     |              |                                 |
| 13 X10           | 50                         | 55                  | 55           |                                 |
| 14               | 100                        | 100                 | 100          |                                 |
| 15               | 150                        | 138                 | 138          |                                 |
| 16               |                            |                     |              |                                 |
| 17 X100          | 500                        | 500                 | 500          |                                 |
| 18               | 1,000                      | 1,000               | 1,000        |                                 |
| 19               | 1,500                      | 1,500               | 1,500        |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct:<br><u>[Signature]</u> |
| Calibration Date: <u>05-16-95</u>                        | <u>05-16-95</u>  |
| Next Calibration Due: <u>08-16-95</u>                    | Administrative Coordinator Date  |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |   |
|----------------------|---|-------------------------|---|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>   |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>E-520</u> Serial Number <u>4195</u>                            |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | <u>HP270</u> Serial # _____                                       |
| Work Order #         | <u>I-95-02-212</u>                                  | Calibration Method      | <u>137</u> <u>Pulser s/n 101500</u><br><u>Cs s/n 10263 200mCi</u> |

### INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X0.01          | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 160                 | 160          | Battery Check: OK               |
| 4                |                            |                     |              |                                 |
| 5 X0.1           | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6                | 1                          | 1                   | 1            |                                 |
| 7                | 1.5                        | 1.5                 | 1.5          | Audio: OK                       |
| 8                |                            |                     |              |                                 |
| 9 X1             | 5                          | 5.2                 | 5.2          |                                 |
| 10               | 10                         | 10.3                | 10.3         |                                 |
| 11               | 15                         | 15.5                | 15.5         |                                 |
| 12               |                            |                     |              |                                 |
| 13 X10           | 50                         | 55                  | 55           |                                 |
| 14               | 100                        | 100                 | 100          |                                 |
| 15               | 150                        | 135                 | 135          |                                 |
| 16               |                            |                     |              |                                 |
| 17 X100          | 500                        | 500                 | 500          |                                 |
| 18               | 1,000                      | 1,000               | 1,000        |                                 |
| 19               | 1,500                      | 1,500               | 1,500        |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>James Christy</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>02-27-95</u>                          | <u>Heena DeBor</u> <u>02-27-95</u>               |
| Next Calibration Due: <u>05-27-95</u>                      | Administrative Coordinator Date                  |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |  | INSTRUMENT INFORMATION  |  |
|----------------------|--|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>  | Instrument Manufacturer | <u>Eberline</u>  |
| Customer Address:    | <u>Avenue A &amp; West Street</u><br><u>Pittsburgh, PA 15221</u> | Model                   | <u>E-520</u> Serial Number <u>4195</u>                               |
| Customer P.O.#       | <u>MB-14027-S</u>  | External Probe(s)       | Serial # _____   |
| Work Order #         | <u>I-94-11-218</u>   | Calibration Method      | <u><sup>137</sup>Pulser s/n 101500</u><br><u>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |                  | Comment                                    |
|------------------|----------------------------|---------------------|------------------|--|
|                  |                            | Before Calib.       | After Calib.     |  |
| 1 <u>X0.01</u>   | <u>40 CPM</u>              | <u>40 CPM</u>       | <u>40 CPM</u>    | <u>All Calibrations Btn. + &amp; - 10%</u> |
| 2                | <u>80</u>                  | <u>80</u>           | <u>80</u>        |  |
| 3                | <u>160</u>                 | <u>160</u>          | <u>160</u>       | <u>Battery Check: OK</u>                   |
| 4                |                            |                     |                  |  |
| 5 <u>X0.1</u>    | <u>0.5 mR/hr</u>           | <u>0.5 mR/hr</u>    | <u>0.5 mR/hr</u> | <u>Mechanical Zero: OK</u>                 |
| 6                | <u>1</u>                   | <u>1</u>            | <u>1</u>         |  |
| 7                | <u>1.5</u>                 | <u>1.5</u>          | <u>1.5</u>       | <u>Response: OK</u>                        |
| 8                |                            |                     |                  |  |
| 9 <u>X1</u>      | <u>5</u>                   | <u>5.5</u>          | <u>5</u>         | <u>Audio: OK</u>                           |
| 10               | <u>10</u>                  | <u>11</u>           | <u>10</u>        |  |
| 11               | <u>15</u>                  | <u>16.5</u>         | <u>15</u>        |  |
| 12               |                            |                     |                  |  |
| 13 <u>X10</u>    | <u>50</u>                  | <u>55</u>           | <u>55</u>        |  |
| 14               | <u>100</u>                 | <u>98</u>           | <u>98</u>        |  |
| 15               | <u>150</u>                 | <u>135</u>          | <u>135</u>       |  |
| 16               |                            |                     |                  |  |
| 17 <u>X100</u>   | <u>500</u>                 | <u>500</u>          | <u>500</u>       |  |
| 18               | <u>1,000</u>               | <u>980</u>          | <u>980</u>       |  |
| 19               | <u>1,500</u>               | <u>1,420</u>        | <u>1,420</u>     |  |
| 20               |                            |                     |                  |  |
| 21               |                            |                     |                  |  |
| 22               |                            |                     |                  |  |
| 23               |                            |                     |                  |  |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u>             | I certify that the above information is correct:   |
| Calibration Date: <u>11-21-94</u> (Signed)               | <u>[Signature]</u> <u>11-21-94</u>                 |
| Next Calibration Due: <u><del>05-21-95</del> 2-21-95</u> | Administrative Coordinator <u>[Signature]</u> Date |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |  | INSTRUMENT INFORMATION  |  |
|----------------------|--|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>  | Instrument Manufacturer | <u>Eberline</u>  |
| Customer Address:    | <u>Avenue A &amp; West Street</u><br><u>Pittsburgh, PA 15221</u> | Model                   | <u>E-520</u> Serial Number <u>4195</u>                         |
| Customer P.O.#       | <u>MB-14027-S</u>  | External Probe(s)       | <u>HP270</u> Serial # _____                                    |
| Work Order #         | <u>I-94-08-218</u>   | Calibration Method      | <u>137</u> <u>Pulser s/n 301</u><br><u>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X0.01          | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 160                 | 160          | Battery Check: OK               |
| 4                |                            |                     |              |                                 |
| 5 X0.1           | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6                | 1                          | 1                   | 1            |                                 |
| 7                | 1.5                        | 1.5                 | 1.5          | Response: OK                    |
| 8                |                            |                     |              |                                 |
| 9 X1             | 5                          | 5                   | 5            | Reset: OK                       |
| 10               | 10                         | 10                  | 10           |                                 |
| 11               | 15                         | 15                  | 15           | Audio: OK                       |
| 12               |                            |                     |              |                                 |
| 13 X10           | 50                         | 55                  | 55           |                                 |
| 14               | 100                        | 100                 | 100          |                                 |
| 15               | 150                        | 138                 | 138          |                                 |
| 16               |                            |                     |              |                                 |
| 17 X100          | 500                        | 500                 | 500          |                                 |
| 18               | 1,000                      | 1,000               | 1,000        |                                 |
| 19               | 1,500                      | 1,450               | 1,450        |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|   |  |
|---|--|
| Instrument Calibrated by: <u>James C. [Signature]</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>08-11-94</u>                                 | <u>[Signature]</u> <u>08-11-94</u>               |
| Next Calibration Due: <u>11-11-94</u>                             | Administrative Coordinator Date                  |





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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION   | INSTRUMENT INFORMATION  |
|--|---|
| Customer Name: <u>Westinghouse</u>   | Instrument Manufacturer <u>Eberline</u>   |
| Customer Address: <u>Avenue A &amp; West Street</u><br><u>Pittsburgh, PA 15221</u> | Model <u>E-520</u> Serial Number <u>4195</u>  |
| Customer P.O.# <u>MB-14027-S</u>   | External Probe(s) <u>HP270</u> Serial # _____   |
| Work Order # <u>I-94-05-222</u>  | Calibration Method <u>137 Cs</u> s/n <u>10263</u> <u>200mCi</u><br><u>Pulser</u> s/n <u>298</u> |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X0.01          | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 158                 | 158          | Battery Check: OK               |
| 4                |                            |                     |              |                                 |
| 5 X0.1           | 0.5 mR/hr                  | 0.7 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6                | 1                          | 1.5                 | 1            |                                 |
| 7                | 1.5                        | Off Scale           | 1.4          | Reset: OK                       |
| 8                |                            |                     |              |                                 |
| 9 X1             | 5                          | 7                   | 5            | Audio: OK                       |
| 10               | 10                         | 14                  | 10           |                                 |
| 11               | 15                         | Off Scale           | 15           | Response: OK                    |
| 12               |                            |                     |              |                                 |
| 13 X10           | 50                         | 50                  | 55           |                                 |
| 14               | 100                        | 95                  | 100          |                                 |
| 15               | 150                        | 130                 | 135          |                                 |
| 16               |                            |                     |              |                                 |
| 17 X100          | 500                        | 500                 | 500          |                                 |
| 18               | 1,000                      | 1,000               | 1,000        |                                 |
| 19               | 1,500                      | 1,450               | 1,450        |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>James Christy</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>05-11-94</u>                          | <u>Theresa M. DeBe</u> 05-11-94                  |
| Next Calibration Due: <u>08-11-94</u>                      | Administrative Coordinator Date                  |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

#14

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                                |  | INSTRUMENT INFORMATION |                           |
|---|--|------------------------|---------------------------|
| Customer Name: <u>Westinghouse Electric</u>         | Instrument Manufacturer <u>Eberline</u>      | Model <u>E-520</u>     | Serial Number <u>4195</u> |
| Customer Address: <u>Avenue A &amp; West Street</u> | External Probe(s) <u>HP270</u>               | Serial # _____         |                           |
| <u>Pittsburgh, PA 15221</u>                         |  |                        |                           |
| Customer P.O.# <u>MB-14016-H</u>                    | Calibration Method <u>137 Pulser s/n 318</u> |                        |                           |
| Work Order # <u>I-94-01-224</u>                     |  | <u>Cs s/n 10263</u>    | <u>200m</u>               |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X0.01            | 40 CPM                     | 55 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2  |                  | 80                         | 110                 | 80           |                                 |
| 3  |                  | 160                        | 220                 | 160          | Battery Check: OK               |
| 4  | X0.1             | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 5  |                  | 1                          | 1                   | 1            |                                 |
| 6  |                  | 1.5                        | 1.5                 | 1.5          | Reset: OK                       |
| 7  |                  |                            |                     |              |                                 |
| 8  |                  |                            |                     |              |                                 |
| 9  | X1               | 5                          | 4                   | 5            | Response: OK                    |
| 10 |                  | 10                         | 8.2                 | 10           |                                 |
| 11 |                  | 15                         | 12.5                | 15           |                                 |
| 12 |                  |                            |                     |              |                                 |
| 13 | X10              | 50                         | 58                  | 55           |                                 |
| 14 |                  | 100                        | 105                 | 100          |                                 |
| 15 |                  | 150                        | 143                 | 135          |                                 |
| 16 |                  |                            | 133                 |              |                                 |
| 17 | X100             | 500                        | 450                 | 500          |                                 |
| 18 |                  | 1,000                      | 900                 | 1,000        |                                 |
| 19 |                  | 1,500                      | 1,330               | 1,500        |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u> | I certify that the above information is correct:   |
| Calibration Date: <u>01-31-94</u> (Signed)   | <u>[Signature]</u> <u>01-31-94</u>                 |
| Next Calibration Due: <u>04-30-94</u>        | Administrative Coordinator <u>[Signature]</u> Date |



2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|  |        |                                 |            |   |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
|--|--------|---------------------------------|------------|---|---------|----------------------------|--------------|---------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----------------------------|--|--|--|
| SHIPPING ADDRESS   |        |                                 |            | BILLING ADDRESS (If Different)                        |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| WFC<br>Ave. "A" & West St.<br>Pgh., PA 15017   |        |                                 |            | SAME  |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| CONTACT: <u>L. Smith</u> PHONE: (—) — DATE: <u>10/8/93</u> P.O.# <u>MA29328-S</u>  |        |                                 |            |   |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| Receiving Comments: <u>Calibration</u>   |        |                                 |            |   |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| Instrument Received: <input checked="" type="checkbox"/> Within Toler. $\pm 10\%$ <input type="checkbox"/> $\pm 10-20\%$ <input type="checkbox"/> Out Toler. <input type="checkbox"/> Requires Repair  |        |                                 |            |   |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| Mfg. Inst. <u>Eberline</u>   |        | Model # <u>E-520</u>            |            | Serial # <u>4195</u>                                  |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| Detector <u>"</u>  |        | Model # <u>HP-370</u>           |            | Serial # <u>3W6M</u>                                  |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| <input checked="" type="checkbox"/> CALIBRATION  |        | <input type="checkbox"/> REPAIR |            | <input type="checkbox"/> SALE                         |         | LOAN By: <u>J. Douglas</u> |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| scale  | source | reading                         | scale      | source  | reading | scale                      | source       | reading |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
|  | mR/hr  |                                 |            | mR/hr   |         |                            | mR/hr        |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| <u>X.01</u>  | .1     | .1                              | <u>X1</u>  | 4   | 4.1     | <u>X100</u>                | 404          | 395     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
|  | .2     | .2                              |            | 13  | 13.3    |                            | 500          | 790     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
|  | .4     | .4                              |            | 40  | 42      |                            | Internal Cm! |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| <u>X.1</u>   | 1.5    | 1.45                            | <u>X10</u> | 120   | 110     |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| Calibration Source: <input checked="" type="checkbox"/> GAMMA <input type="checkbox"/> ALPHA <input type="checkbox"/> BETA <input type="checkbox"/> ELECTRONIC <input type="checkbox"/> OTHER  |        |                                 |            |   |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| Description: <input checked="" type="checkbox"/> ra-226 <input type="checkbox"/> cs-137 <input type="checkbox"/> pu-239 <input type="checkbox"/> sr-90 <input type="checkbox"/> mp-1   |        |                                 |            |   |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| RESPONSE GRAPH <u>N/A</u>  |        |                                 |            | PROBE EFFICIENCIES <u>N/A</u>                         |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| <table border="1" style="width:100%; height: 100%; border-collapse: collapse;"> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> |        |                                 |            |   |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Alpha _____ % Beta _____ % |  |  |  |
|  |        |                                 |            |   |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
|  |        |                                 |            |   |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
|  |        |                                 |            |   |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
|  |        |                                 |            |   |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
|  |        |                                 |            |   |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
|  |        |                                 |            | Check Source Reading <u>N/A</u>                       |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
|  |        |                                 |            | Battery Check Reading <u>15.9 mR/h</u>                |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
|  |        |                                 |            | Detector Angle <u>Perpendicular</u>                   |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
|  |        |                                 |            | Corrections <u>N/A <math>\pm 10\%</math> to I-R/h</u> |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| TEMP/HUMIDITY <u>70.0 °F / 36 %</u>  |        |                                 |            |   |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| Maintenance & Comments <u>BATTERIES OK, HV-OK.</u>   |        |                                 |            |   |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| <u>Tested, Inspected &amp; Calibrated</u>  |        |                                 |            |   |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| CALIBRATION <u>Contract</u>  |        | <u>40.00</u>                    |            | QA Dept. <u>JH</u>                                    |         | Warranty _____             |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| LABOR _____  |        | _____                           |            | Shipping <u>UPS</u>                                   |         | Date <u>10/8/93</u>        |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| MATERIALS _____  |        | _____                           |            | Pick-Up _____   |         | Date <u>1/1</u>            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| & _____  |        | _____                           |            | This Certificate Expires In <u>3</u> Months           |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| SALES _____  |        | _____                           |            | Re-Calibrate On Or Before <u>1/3/94</u>               |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |
| SHIPPING <u>UPS</u>  |        | _____                           |            | Job ID # <u>52572</u>                                 |         |                            |              |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.



HEALTH PHYSICS inc.

2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|                                 |                                |
|---------------------------------|--------------------------------|
| SHIPPING ADDRESS                | BILLING ADDRESS (If Different) |
| <u>WEC</u>                      | <u>SAME</u>                    |
| <u>Ave. "A" &amp; W. Street</u> |                                |
| <u>Pgh., PA 15112</u>           |                                |

CONTACT: J. Flanigan PHONE: ( ) \_\_\_\_\_ DATE: 7/14/93 P.O.# MA 893285

Receiving Comments: Calibration.

|                      |  |  |                                     |  |
|----------------------|--|--|-------------------------------------|--|
| Instrument Received: | <input checked="" type="checkbox"/> Within Toler. $\pm 10\%$ | <input type="checkbox"/> $\pm 10-20\%$ | <input type="checkbox"/> Out Toler. | <input type="checkbox"/> Requires Repair |
| Mfg. Inst.           | <u>Eberline</u>  | Model # <u>E-520</u>                   | Serial # <u>4195</u>                |  |
| Detector             | <u>11</u>  | Model # <u>HP-270</u>                  | Serial # <u>5W6M</u>                |  |

|   |                                 |                               |   |
|---|---------------------------------|-------------------------------|---|
| <input checked="" type="checkbox"/> CALIBRATION | <input type="checkbox"/> REPAIR | <input type="checkbox"/> SALE | <input type="checkbox"/> LOAN By: <u>J. Douglas</u> |
|---|---------------------------------|-------------------------------|---|

| scale       | source | reading | scale      | source | reading | scale       | source               | reading |
|-------------|--------|---------|------------|--------|---------|-------------|----------------------|---------|
|             | mR/hr  |         |            | mR/hr  |         |             | mR/hr                |         |
| <u>X.01</u> | .1     | .098    | <u>X1</u>  | 4      | 4       | <u>X100</u> | 404                  | 400     |
|             | .2     | .19     |            | 13     | 13.2    |             | 300                  | 215     |
| <u>X.1</u>  | .4     | .39     | <u>X10</u> | 40     | 42      |             | <u>Interanal 6m!</u> |         |
|             | 1.5    | 1.4     |            | 120    | 117     |             |                      |         |

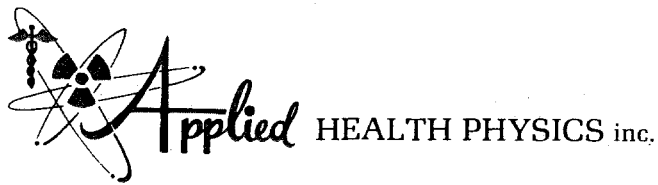
|                     |  |                                 |                                 |                                     |                                |
|---------------------|--|---------------------------------|---------------------------------|-------------------------------------|--------------------------------|
| Calibration Source: | <input checked="" type="checkbox"/> GAMMA  | <input type="checkbox"/> ALPHA  | <input type="checkbox"/> BETA   | <input type="checkbox"/> ELECTRONIC | <input type="checkbox"/> OTHER |
| Description:        | <input checked="" type="checkbox"/> ra-226 | <input type="checkbox"/> cs-137 | <input type="checkbox"/> pu-239 | <input type="checkbox"/> sr-90      | <input type="checkbox"/> mp-1  |

|   |                               |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
|---|-------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|
| RESPONSE GRAPH <u>N/A</u>   | PROBE EFFICIENCIES <u>N/A</u> |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
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|   |                               |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
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|   |                               |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |
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| TEMP/HUMIDITY <u>69.0°F / 44%</u>   |                               |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |

Maintenance & Comments Replaced (2) D Cells, HV-OK.

|   |                    |               |   |
|---|--------------------|---------------|---|
| <u>Tested, Inspected &amp; Calibrated</u> |                    |               |   |
| CALIBRATION                               | <u>Contract</u>    | <u>40.00</u>  | QA Dept. <u>JDS</u> Warranty _____          |
| LABOR                                     |                    |               | Shipping <u>UPS</u> Date <u>7/14/93</u>     |
| MATERIALS                                 | <u>(2) D Cells</u> | <u>1.5000</u> | Pick-Up _____ Date <u>1/1</u>               |
| &   |                    |               | This Certificate Expires In <u>3</u> Months |
| SALES                                     |                    |               | Re-Calibrate On Or Before <u>10/14/93</u>   |
| SHIPPING                                  | <u>UPS</u>         |               | Job ID # <u>52369</u>                       |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.



2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|  |        |  |  |                                     |  |  |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
|--|--------|--|--|-------------------------------------|--|--|----------------------|---|--|--------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----------------------------|--|--|--|--|--|
| SHIPPING ADDRESS   |        |  |  | BILLING ADDRESS (If Different)      |  |  |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| W E C<br>Ave. A & West St.<br>Pgh, PA 15112  |        |  |  | SAME                                |  |  |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| CONTACT: <u>J. Flanigan</u> PHONE: (—) ——— DATE: <u>4/13/93</u> P.O.# <u>MA8932555</u>   |        |  |  |                                     |  |  |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| Receiving Comments: <u>Calibration.</u>  |        |  |  |                                     |  |  |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| Instrument Received:   |        | <input checked="" type="checkbox"/> Within Toler. $\pm 10\%$ | <input type="checkbox"/> $\pm 10-20\%$ | <input type="checkbox"/> Out Toler. | <input type="checkbox"/> Requires Repair |  |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| Mfg. Inst. <u>Fberline</u>   |        | Model # <u>E-520</u>   | Serial # <u>4125</u>                   | Detector <u>11</u>                  |  | Model # <u>HP-270</u>                                  | Serial # <u>JWGM</u> |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| <input checked="" type="checkbox"/> CALIBRATION  |        | <input type="checkbox"/> REPAIR                              |  | <input type="checkbox"/> SALE       |  | LOAN By: <u>J. Douglas</u>                             |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| scale  | source | reading  | scale                                  | source                              | reading                                  | scale  | source               | reading                                     |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
|  | mR/hr  |  |  | mR/hr                               |  |  | mR/hr                |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| <u>X.01</u>  | .1     | .1   | <u>XL</u>                              | 4                                   | 4  | <u>X100</u>  | 404                  | 400   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
|  | .2     | .2   |  | 13                                  | 13.3                                     |  | 700                  | 715   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| <u>X.1</u>   | .4     | .4   | <u>X10</u>                             | 40                                  | 43                                       |  | Internal             | GM!   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
|  | 1.5    | 1.45   |  | 120                                 | 118                                      |  |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| Calibration Source:  |        | <input checked="" type="checkbox"/> GAMMA                    |  | <input type="checkbox"/> ALPHA      |  | <input type="checkbox"/> BETA                          |                      | <input type="checkbox"/> ELECTRONIC         |  | <input type="checkbox"/> OTHER |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| Description:   |        | <input checked="" type="checkbox"/> ra-226                   |  | <input type="checkbox"/> cs-137     |  | <input type="checkbox"/> pu-239                        |                      | <input type="checkbox"/> sr-90              |  | <input type="checkbox"/> mp-1  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| RESPONSE GRAPH <u>N/A</u>  |        |  |  |                                     |  | PROBE EFFICIENCIES <u>N/A</u>                          |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| <table border="1" style="width: 100%; height: 40px;"> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> |        |  |  |                                     |  |  |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Alpha _____ % Beta _____ % |  |  |  |  |  |
|  |        |  |  |                                     |  |  |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
|  |        |  |  |                                     |  |  |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
|  |        |  |  |                                     |  |  |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
|  |        |  |  |                                     |  |  |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
|  |        |  |  |                                     |  |  |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
|  |        |  |  |                                     |  | Check Source Reading <u>N/A</u>                        |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
|  |        |  |  |                                     |  | Battery Check Reading <u>16.5 MR/HR</u>                |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
|  |        |  |  |                                     |  | Detector Angle <u>Perpendicular</u>                    |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
|  |        |  |  |                                     |  | Corrections <u>N/A <math>\pm 10\%</math> to 1-R/HR</u> |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| TEMP/HUMIDITY <u>73.6°F / 35 %</u>   |        |  |  |                                     |  |  |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| Maintenance & Comments <u>All Batteries OK, HV-OK.</u>   |        |  |  |                                     |  |  |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| <u>Tested, Inspected &amp; Calibrated</u>  |        |  |  |                                     |  |  |                      |   |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| CALIBRATION <u>Contract</u>  |        |  |  | 40.00                               |  |  |                      | QA Dept. <u>JW</u> Warranty _____           |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| LABOR  |        |  |  |                                     |  |  |                      | Shipping <u>UPS</u> Date <u>4/13/93</u>     |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| MATERIALS  |        |  |  |                                     |  |  |                      | Pick-Up _____ Date <u>1-1</u>               |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| &  |        |  |  |                                     |  |  |                      | This Certificate Expires In <u>3 Months</u> |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| SALES  |        |  |  |                                     |  |  |                      | Re-Calibrate On Or Before <u>7/13/93</u>    |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |
| SHIPPING <u>UPS</u>  |        |  |  |                                     |  |  |                      | Job ID # <u>52185</u>                       |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |  |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.



HEALTH PHYSICS inc.

2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|   |                                |
|---|--------------------------------|
| SHIPPING ADDRESS  | BILLING ADDRESS (If Different) |
| W.E.C.<br>Forest Hills Cde<br>Ace. A Y. Wood St.<br>Pgh, PA 15112 | SAME                           |

CONTACT: J. Flanigan PHONE: (412) 374-4651 DATE: 1/10/93 P.O.# MA3920255

Receiving Comments: Calibration.

Instrument Received:  Within Toler.  $\pm 10\%$    $\pm 10-20\%$   Out Toler.  Requires Repair

Mfg. Inst. Eberline Model # E-520 Serial # 4195  
 Detector 11 Model # HP-270 Serial #         

CALIBRATION  REPAIR  SALE  LOAN By: J. Douglas

| scale       | source | reading | scale      | source | reading | scale       | source   | reading |
|-------------|--------|---------|------------|--------|---------|-------------|----------|---------|
|             | mR/hr  |         |            | mR/hr  |         |             | mR/hr    |         |
| <u>X101</u> | .1     | .1      |            | 4      | 4.1     |             | 310      | 310     |
|             | .2     | .2      | <u>X1</u>  | 13     | 13.5    | <u>X100</u> | 200      | 788     |
|             | .4     | .4      |            | 40     | 42      |             | Internal | GM!     |
| <u>X.1</u>  | 1.5    | 1.6     | <u>X10</u> | 120    | 117     |             |          |         |

Calibration Source:  GAMMA  ALPHA  BETA  ELECTRONIC  OTHER

Description:  ra-226  cs-137  pu-239  sr-90  mp-1

RESPONSE GRAPH N/A

PROBE EFFICIENCIES N/A

Alpha          & Beta          &  
 Check Source Reading N/A  
 Battery Check Reading 16.6 mR/hr  
 Detector Angle Perpendicular  
 Corrections N/A  $\pm 10\%$  to 1-R/hr

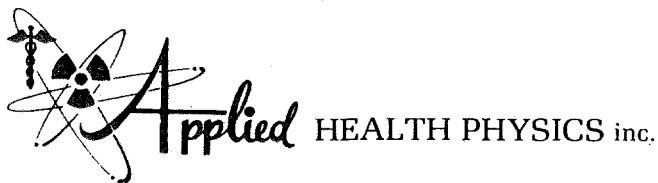
TEMP/HUMIDITY 70.5 °F / 34 %

Maintenance & Comments Replaced 2 D Cells, HV-OK.

|             |                    |                  |              |
|-------------|--------------------|------------------|--------------|
| CALIBRATION | <u>Contract</u>    |                  | <u>40.00</u> |
| LABOR       |                    |                  |              |
| MATERIALS   | <u>(2) D Cells</u> | <u>1.50</u>      | <u>3.00</u>  |
| &           |                    |                  |              |
| SALES       |                    |                  |              |
| SHIPPING    | <u>UPS</u>         | <u>(4) Cards</u> | <u>12.57</u> |

Tested, Inspected & Calibrated  
 QA Dept.          Warranty           
 Shipping UPS Date 1/12/93  
 Pick-Up          Date           
 This Certificate Expires In 6 Months  
 Re-Calibrate On Or Before 7/12/95  
 Job ID # 51963

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.



2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|  |                  |  |                                  |   |  |                                |                     |         |  |
|--|------------------|--|----------------------------------|---|--|--------------------------------|---------------------|---------|--|
| SHIPPING ADDRESS   |                  |  |                                  |   | BILLING ADDRESS (If Different)               |                                |                     |         |  |
| Westinghouse Corp.   |                  |  |                                  |   | SAME   |                                |                     |         |  |
| Forest Hills Site  |                  |  |                                  |   |  |                                |                     |         |  |
| Ave. A & West St.  |                  |  |                                  |   |  |                                |                     |         |  |
| Pgh., PA 15112   |                  |  |                                  |   |  |                                |                     |         |  |
| CONTACT: <u>Jim Flanigan</u> PHONE: (—) —  |                  |  |                                  |   | DATE: <u>9/28/92</u> P.O.# <u>51-03026-H</u> |                                |                     |         |  |
| Receiving Comments: <u>Calibration</u>   |                  |  |                                  |   |  |                                |                     |         |  |
| Instrument Received:   |                  | <input checked="" type="checkbox"/> Within Toler. ±10% | <input type="checkbox"/> ±10-20% | <input type="checkbox"/> Out Toler.         | <input type="checkbox"/> Requires Repair     |                                |                     |         |  |
| Mfg. Inst. <u>Federal</u>  |                  | Model # <u>E-520</u>                                   |                                  | Serial # <u>4195</u>                        |  |                                |                     |         |  |
| Detector <u>"</u>  |                  | Model # <u>HD-270</u>                                  |                                  | Serial # <u>2W6M</u>                        |  |                                |                     |         |  |
| <input checked="" type="checkbox"/>  | CALIBRATION      | <input type="checkbox"/>                               | REPAIR                           | <input type="checkbox"/>                    | SALE   | LOAN By: <u>J. Douglas</u>     |                     |         |  |
| scale  | source           | reading  | scale                            | source                                      | reading                                      | scale                          | source              | reading |  |
|  | mR/hr            |  |                                  | mR/hr                                       |  |                                | mR/hr               |         |  |
| <u>X.01</u>  | .1               | .1   | <u>X1</u>                        | 4   | 4  | <u>X100</u>                    | 310                 | 306     |  |
|  | .2               | .19  |                                  | 13  | 12.5   |                                | 300                 | 230     |  |
| <u>X.1</u>   | .4               | .4   | <u>X10</u>                       | 40  | 42   |                                | <u>Internal GM!</u> |         |  |
|  | 1.5              | 1.45   |                                  | 100   | 114  |                                |                     |         |  |
| Calibration Source:  |                  | <input checked="" type="checkbox"/> GAMMA              | <input type="checkbox"/> ALPHA   | <input type="checkbox"/> BETA               | <input type="checkbox"/> ELECTRONIC          | <input type="checkbox"/> OTHER |                     |         |  |
| Description:   |                  | <input checked="" type="checkbox"/> ra-226             | <input type="checkbox"/> cs-137  | <input type="checkbox"/> pu-239             | <input type="checkbox"/> sr-90               | <input type="checkbox"/> mp-1  |                     |         |  |
| RESPONSE GRAPH <u>N/A</u>  |                  |  |                                  |   | PROBE EFFICIENCIES <u>N/A</u>                |                                |                     |         |  |
|  |                  |  |                                  |   | Alpha _____ % Beta _____ %                   |                                |                     |         |  |
|  |                  |  |                                  |   | Check Source Reading <u>N/A</u>              |                                |                     |         |  |
|  |                  |  |                                  |   | Battery Check Reading <u>15.5 mR/hr</u>      |                                |                     |         |  |
|  |                  |  |                                  |   | Detector Angle <u>Perpendicular</u>          |                                |                     |         |  |
|  |                  |  |                                  |   | Corrections <u>N/A ±10% To 1-R/hr</u>        |                                |                     |         |  |
| TEMP/HUMIDITY <u>79.5°F / 48%</u>  |                  |  |                                  |   |  |                                |                     |         |  |
| Maintenance & Comments <u>Replaced 2 D Cells &amp; 1 M504 JK-1 Battery, HV-OK.</u> |                  |  |                                  |   |  |                                |                     |         |  |
| <u>Tested, Inspected &amp; Calibrated</u>  |                  |  |                                  |   |  |                                |                     |         |  |
| CALIBRATION  | <u>Contract</u>  |  | <u>40.00</u>                     | QA Dept.                                    | <u>JS</u>                                    | Warranty                       |                     |         |  |
| LABOR  |                  |  |                                  | Shipping                                    | <u>UPS</u>                                   | Date                           | <u>9/28/92</u>      |         |  |
| MATERIALS  | <u>2 D Cells</u> | <u>1.50/m</u>  | <u>3.00</u>                      | Pick-Up                                     |  | Date                           | <u>1/1</u>          |         |  |
| &  | <u>1 M504</u>    | <u>6.65</u>  | <u>6.65</u>                      | This Certificate Expires In <u>6</u> Months |  |                                |                     |         |  |
| SALES  |                  |  |                                  | Re-Calibrate On Or Before <u>3/28/93</u>    |  |                                |                     |         |  |
| SHIPPING   | <u>UPS</u>       |  |                                  | Job ID # <u>51758</u>                       |  |                                |                     |         |  |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.

**CALIBRATION RECORDS  
FOR INSTRUMENTS USED FOR  
RADIOLOGICAL SURVEYS**

**JUNE 27, 2000**

**VOLUME 5 OF 7**

**WESTINGHOUSE ELECTRIC CORPORATION  
BLAIRSVILLE, PA**



**CALIBRATION RECORDS  
FOR INSTRUMENTS USED FOR  
RADIOLOGICAL SURVEYS**

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| Appendix B - Certificates of Calibration for Source Standards                   |                    |
| Appendix C - Calibration Records for Radiological Survey Instruments            |                    |

CALIBRATION RECORDS  
FOR INSTRUMENTS USED FOR  
RADIOLOGICAL SURVEYS

Purpose

The Westinghouse Blairsville Site utilized nuclear materials during the period of the mid to late 1950's to the early part of the 1960's. Work was performed both under licenses with the atomic Energy Commission and for the Bettis Atomic Power Laboratory. Although all work ceased during the 1960's, subsequent radiological surveys and investigations, starting in 1993, established that some residual radioactivity, primarily in underground piping and subsurface soil contamination, existed on the site. During the period of 1993 through the present, additional remediation work and radiological surveys have been conducted to establish that the site can be released for unrestricted use. This series of reports documents the results of the final status radiological surveys subsequent to the various remediation efforts.

Scope

This report compiles information on the calibration of the radiological survey instruments, which were used to measure the radiation levels presented in the other reports issued for this project. In each report, which documents a final radiological survey, the data sheets that record the measured radiation levels also provide specific information with respect to the specific instrument used to make the measurement. This report provides the necessary information to establish the entire calibration history of each specific instrument. These instruments have been used for the Westinghouse sites at Blairsville, Cheswick, and Forest Hills (now Viacom, Inc.). Therefore these calibration records are applicable to all these sites.

Discussion

All instruments used for radiological surveys on this project were calibrated on a frequency depending on the specific instrument. The calibration history for every instrument used on the project is summarized in appendix A, which cover the years 1993 through 1999. These summaries also provide a reference to a "Code Number." Included with this report in Appendix B are sheets labeled "Code Number 1" through "Code Number 70." Each of these "codes" incorporates the calibration records as appropriate for the specific instrument.

The certification sheets for each of the source standards used by the project to calibrate the instruments for conversion of CPM to DPM are included in Appendix C. Other calibrations were performed at other licensed operations as noted by the calibration records and no information on Source Certification is provided here.

**CALIBRATION RECORDS  
FOR INSTRUMENTS USED FOR  
RADIOLOGICAL SURVEYS**

List of Volume Contents

1. Appendix A: Instrument Calibration Summary Sheets  
Appendix B: Certificates of Calibration for Source Standards
2. Appendix C: Instrument Codes 1 to 3
3. Appendix C: Instrument Codes 4 to 8
4. Appendix C: Instrument Codes 9 to 14
5. Appendix C: Instrument Codes 15 to 25
6. Appendix C: Instrument Codes 26 to 36
7. Appendix C: Instrument Codes 37 to 70

**CODE NUMBER 15 & 16**

**REPORT #001**



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 724/733-1900 Fax: 724/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                 |   | INSTRUMENT INFORMATION |                            |
|--------------------------------------|---|------------------------|----------------------------|
| Customer Name: <u>Westinghouse</u>   | Instrument Manufacturer: <u>Eberline</u>        | Model: <u>E-520</u>    | Serial Number: <u>5242</u> |
| Customer Address: <u>PO Box 3700</u> | External Probe(s): <u>HP177C</u>                | Serial #: _____        |                            |
| <u>Pittsburgh, PA 15230</u>          |   |                        |                            |
| Customer P.O.#: <u>MB-14027-S</u>    | Calibration Method: <u>137Pulser s/n 101500</u> |                        |                            |
| Work Order #: <u>I-98-12-208</u>     | <u>Cs s/n 10263 200mCi</u>                      |                        |                            |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X.01           | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 160                 | 160          | Battery: OK                     |
| 4 X0.1           | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 5                | 1                          | 1                   | 1            |                                 |
| 6                | 1.5                        | 1.5                 | 1.5          | Response: OK                    |
| 7                |                            |                     |              |                                 |
| 8 X1             | 5                          | 5.2                 | 5.2          | Reset: OK                       |
| 9                | 10                         | 10.5                | 10.5         |                                 |
| 10               | 15                         | 16                  | 16           | Speaker: OK                     |
| 11               |                            |                     |              |                                 |
| 12 X10           | 50                         | 55                  | 55           |                                 |
| 13               | 100                        | 100                 | 100          |                                 |
| 14               | 150                        | 137                 | 137          |                                 |
| 15               |                            |                     |              |                                 |
| 16 X100          | 500                        | 530                 | 530          |                                 |
| 17               | 1,000                      | 1,070               | 1,070        |                                 |
| 18               | 1,500                      | 1,600               | 1,600        |                                 |
| 19               |                            |                     |              |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: [Signature]  
 Calibration Date: 12-17-98 (Signed)  
 Next Calibration Due: 03-17-99

I certify that the above information is correct:  
[Signature] 12-17-98  
 Administrative Coordinator Date

|                     |                     |                 |
|---------------------|---------------------|-----------------|
| INSTRUMENT: (E-520) | Serial Number: 5242 | Code Number: 15 |
|---------------------|---------------------|-----------------|

SOURCE INFORMATION

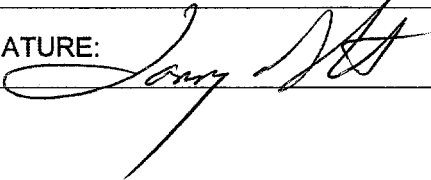
| CHECK IF USED | SOURCE NUMBERS | ACTIVITY (DPM) | SOURCE TYPE |
|---------------|----------------|----------------|-------------|
| ✓             | 761/84         | 162            | TC-99       |
| ✓             | 762/84         | 1310           | TC-99       |
| ✓             | 763/84         | 18700          | TC-99       |
| ✓             | 764/84         | 146000         | TC-99       |

BETA CALIBRATION

| SOURCE NUMBER | ACTIVITY DPM | INST. RANGE | TOLERANCE | READING GROSS CPM | BKG. CPM | READING NET CPM | EFFICIENCY |
|---------------|--------------|-------------|-----------|-------------------|----------|-----------------|------------|
| 761/84        | 162          | X.01        | ± 10 %    | 50                | 30       | 20              | 12.3       |
| 762/84        | 1310         | X.01        | ± 10 %    | 200               | 30       | 170             | 12.9       |
| 763/84        | 18700        | X.1         | ± 10 %    | 4300              | 30       | 4270            | 22.8       |
| 764/84        | 146000       | X.10        | ± 10 %    | 40000             | 30       | 39,970          | 27.4       |

COMMENTS:

Avg. Eff. : 18.9 %

|                            |   |                |
|----------------------------|---|----------------|
| CALIBRATED BY: LARRY SMITH | SIGNATURE:  | DATE: 12-21-98 |
|----------------------------|---|----------------|



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 724/733-1900 Fax: 724/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |  |
|----------------------|---|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>                               | Instrument Manufacturer | <u>Eberline</u>                                  |
| Customer Address:    | <u>PO Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>E-520</u> Serial Number <u>5242</u>           |
| Customer P.O.#       | <u>MB-14027-S</u>                                 | External Probe(s)       | <u>HP177C</u> Serial # _____                     |
| Work Order #         | <u>I-98-09-209</u>                                | Calibration Method      | <u>137</u> Pulser s/n 301<br>Cs s/n 10263 200mCi |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X.01             | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2  |                  | 80                         | 80                  | 80           |                                 |
| 3  |                  | 160                        | 160                 | 160          |                                 |
| 4  |                  |                            |                     |              | Battery: OK                     |
| 5  | X0.1             | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6  |                  | 1                          | 1                   | 1            |                                 |
| 7  |                  | 1.5                        | 1.5                 | 1.5          |                                 |
| 8  |                  |                            |                     |              | Response: OK                    |
| 9  | X1               | 5                          | 5                   | 5            | Reset: OK                       |
| 10 |                  | 10                         | 10.5                | 10.5         |                                 |
| 11 |                  | 15                         | 15.5                | 15.5         |                                 |
| 12 |                  |                            |                     |              | Audio: OK                       |
| 13 | X10              | 50                         | 55                  | 55           |                                 |
| 14 |                  | 100                        | 100                 | 100          |                                 |
| 15 |                  | 150                        | 138                 | 138          |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 | X100             | 500                        | 520                 | 520          |                                 |
| 18 |                  | 1,000                      | 1,000               | 1,000        |                                 |
| 19 |                  | 1,500                      | 1,500               | 1,500        |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u><i>Jamie Phillips</i></u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>09-01-98</u>                                  | <u><i>Jamie Phillips</i></u> 09-01-98            |
| Next Calibration Due: <u>12-01-98</u>                              | Administrative Coordinator Date                  |



GTS Instrument Services  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 724/733-1900 Fax: 724/327-8189

# CALIBRATION CERTIFICATE

#15-16

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                 | INSTRUMENT INFORMATION                                 |
|--------------------------------------|--|
| Customer Name: <u>Westinghouse</u>   | Instrument Manufacturer <u>Eberline</u>                |
| Customer Address: <u>PO Box 3700</u> | Model <u>E-520</u> Serial Number <u>5242</u>           |
| <u>Pittsburgh, PA 15230</u>          | External Probe(s) <u>HP177C</u> Serial # _____         |
| Customer P.O.# <u>MB-14027-S</u>     | Calibration Method <u>137</u> <u>Pulser s/n 101500</u> |
| Work Order # <u>I-98-05-210</u>      | <u>Cs s/n 10263 200mCi</u>                             |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X.01           | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 160                 | 160          |                                 |
| 4                |                            |                     |              | Battery: OK                     |
| 5 X0.1           | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6                | 1                          | 1                   | 1            |                                 |
| 7                | 1.5                        | 1.5                 | 1.5          |                                 |
| 8                |                            |                     |              | Response: OK                    |
| 9 X1             | 5                          | 5                   | 5            | Reset: OK                       |
| 10               | 10                         | 10.2                | 10.2         |                                 |
| 11               | 15                         | 15.5                | 15.5         |                                 |
| 12               |                            |                     |              | Speaker: OK                     |
| 13 X10           | 50                         | 55                  | 55           |                                 |
| 14               | 100                        | 100                 | 100          |                                 |
| 15               | 150                        | 138                 | 138          |                                 |
| 16               |                            |                     |              |                                 |
| 17 X100          | 500                        | 520                 | 520          |                                 |
| 18               | 1,000                      | 1,020               | 1,020        |                                 |
| 19               | 1,500                      | 1,580               | 1,580        |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: [Signature]  
 Calibration Date: 05-29-98  
 Next Calibration Due: 08-29-98

I certify that the above information is correct:  
[Signature] Administrative Coordinator  
 Date 05-29-98





**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION  | INSTRUMENT INFORMATION   |
|---|--|
| Customer Name: <u>Westinghouse</u>                                    | Instrument Manufacturer <u>Eberline</u>  |
| Customer Address: <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model <u>E-520</u> Serial Number <u>5242</u>   |
| Customer P.O.# <u>MB-14027-S</u>                                      | External Probe(s) <u>X</u> Serial # _____  |
| Work Order # <u>I-96-12-210</u>                                       | Calibration Method <u><sup>137</sup>Pulser s/n 318</u><br><u>Cs s/n 10263 200mCi</u> |

### INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X.01             | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2  |                  | 80                         | 80                  | 80           |                                 |
| 3  |                  | 160                        | 160                 | 160          | Battery: OK                     |
| 4  |                  |                            |                     |              |                                 |
| 5  | X0.1             | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6  |                  | 1                          | 1                   | 1            |                                 |
| 7  |                  | 1.5                        | 1.5                 | 1.5          | Reset: OK                       |
| 8  |                  |                            |                     |              |                                 |
| 9  | X1               | 5                          | 5                   | 5            | Response: OK                    |
| 10 |                  | 10                         | 10.5                | 10.5         |                                 |
| 11 |                  | 15                         | 15.5                | 15.5         | Audio: OK                       |
| 12 |                  |                            |                     |              |                                 |
| 13 | X10              | 50                         | 55                  | 55           |                                 |
| 14 |                  | 100                        | 100                 | 100          |                                 |
| 15 |                  | 150                        | 138                 | 138          |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 | X100             | 500                        | 600                 | 500          |                                 |
| 18 |                  | 1,000                      | 1,200               | 1,000        |                                 |
| 19 |                  | 1,500                      | 1,700               | 1,500        |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|   |  |
|---|--|
| Instrument Calibrated by: <u>William Owen</u><br>(Signed) | I certify that the above information is correct:   |
| Calibration Date: <u>01-09-97</u>                         | <u>[Signature]</u> <u>01-09-97</u>                 |
| Next Calibration Due: <u>04-09-97</u>                     | Administrative Coordinator <u>[Signature]</u> Date |

|                     |                     |                 |
|---------------------|---------------------|-----------------|
| INSTRUMENT: (E-520) | Serial Number: 5242 | Code Number: 15 |
|---------------------|---------------------|-----------------|

SOURCE INFORMATION

| CHECK IF USED | SOURCE NUMBERS | ACTIVITY (DPM) | SOURCE TYPE |
|---------------|----------------|----------------|-------------|
| ✓             | 761/84         | 162            | TC-99       |
| ✓             | 762/84         | 1310           | TC-99       |
| ✓             | 763/84         | 18700          | TC-99       |
| ✓             | 764/84         | 146000         | TC-99       |

BETA CALIBRATION

| SOURCE NUMBER | ACTIVITY DPM | INST. RANGE | TOLERANCE | READING GROSS CPM | BKG. CPM | READING NET CPM | EFFICIENCY |
|---------------|--------------|-------------|-----------|-------------------|----------|-----------------|------------|
| 761/84        | 162          | X.0X        | + 10%     | 76                | 40       | 36              | 18.5%      |
| 762/84        | 1310         | X.1         | + 10%     | 400               | 40       | 360             | 27.5%      |
| 763/84        | 18700        | X 1         | + 10%     | 4000              | 40       | 4000            | 21.3%      |
| 764/84        | 146000       | X 10        | + 10%     | 40000             | 40       | 40000           | 27.4%      |

COMMENTS:  
23.7% EFF CF: 4.2

|  |   |               |
|--|---|---------------|
| CALIBRATED BY:  | SIGNATURE:  | DATE: 1-20-97 |
|--|---|---------------|



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |  |
|----------------------|---|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>  |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>E-520</u> Serial Number <u>5242</u>                         |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | <u>X</u> Serial # _____  |
| Work Order #         | <u>I-96-08-210</u>                                  | Calibration Method      | <u>137</u> <u>Pulser s/n 301</u><br><u>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X.01             | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2  |                  | 80                         | 80                  | 80           |                                 |
| 3  |                  | 160                        | 155                 | 155          | Battery: OK                     |
| 4  |                  |                            |                     |              |                                 |
| 5  | X0.1             | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6  |                  | 1                          | 1                   | 1            |                                 |
| 7  |                  | 1.5                        | 1.5                 | 1.5          | Reset: OK                       |
| 8  |                  |                            |                     |              |                                 |
| 9  | X1               | 5                          | 5                   | 5            | Response: OK                    |
| 10 |                  | 10                         | 10.5                | 10.5         |                                 |
| 11 |                  | 15                         | 16                  | 16           | Audio: OK                       |
| 12 |                  |                            |                     |              |                                 |
| 13 | X10              | 50                         | 55                  | 55           |                                 |
| 14 |                  | 100                        | 100                 | 100          |                                 |
| 15 |                  | 150                        | 135                 | 135          |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 | X100             | 500                        | 500                 | 500          |                                 |
| 18 |                  | 1,000                      | 1,000               | 1,000        |                                 |
| 19 |                  | 1,500                      | 1,500               | 1,500        |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|   |   |
|---|---|
| Instrument Calibrated by: <u>William Owen</u><br>(Signed) | I certify that the above information is correct:<br><u>William Owen</u><br>Administrative Coordinator |
| Calibration Date: <u>08-30-96</u>                         | <u>08-30-96</u><br>Date   |
| Next Calibration Due: <u>11-30-96</u>                     |   |

|                     |                     |                 |
|---------------------|---------------------|-----------------|
| INSTRUMENT: (E-520) | Serial Number: 5242 | Code Number: 15 |
|---------------------|---------------------|-----------------|

SOURCE INFORMATION

| CHECK IF USED | SOURCE NUMBERS | ACTIVITY (DPM) | SOURCE TYPE |
|---------------|----------------|----------------|-------------|
|               | 761/84         | 162            | TC-99       |
|               | 762/84         | 1310           | TC-99       |
| ✓             | 763/84         | 18700          | TC-99       |
| ✓             | 764/84         | 146000         | TC-99       |

BETA CALIBRATION

| SOURCE NUMBER | ACTIVITY DPM | INST. RANGE | TOLERANCE | READING GROSS CPM | BKG. CPM | READING NET CPM | EFFICIENCY |
|---------------|--------------|-------------|-----------|-------------------|----------|-----------------|------------|
| 763/84        | 18700        | X1          | ± 10%     | 4000              | 30       | 3970            | 21.2%      |
| 764/84        | 145994       | X10         | ± 10%     | 35000             | 30       | 34970           | 23.9%      |
|               |              |             |           |                   |          |                 |            |
|               |              |             |           |                   |          |                 |            |

COMMENTS:  
 22.5% EFF.

|                            |                                     |              |
|----------------------------|-------------------------------------|--------------|
| CALIBRATED BY: Lacey Smith | SIGNATURE: <i>Jerry [Signature]</i> | DATE: 9/5/96 |
|----------------------------|-------------------------------------|--------------|



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |  |
|----------------------|---|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>  |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>E-520</u> Serial Number <u>5242</u>                               |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | <u>HP177C</u> Serial # _____   |
| Work Order #         | <u>I-96-04-228</u>                                  | Calibration Method      | <u><sup>137</sup>Pulsar s/n 101500</u><br><u>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X.01           | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 160                 | 160          | Battery: OK                     |
| 4                |                            |                     |              |                                 |
| 5 X0.1           | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Response: OK                    |
| 6                | 1                          | 1                   | 1            |                                 |
| 7                | 1.5                        | 1.5                 | 1.5          | Reset: OK                       |
| 8                |                            |                     |              |                                 |
| 9 X1             | 5                          | 4.8                 | 5            | Speaker: OK                     |
| 10               | 10                         | 9.5                 | 10           |                                 |
| 11               | 15                         | 14                  | 15           | Mechanical Zero: OK             |
| 12               |                            |                     |              |                                 |
| 13 X10           | 50                         | 55                  | 55           |                                 |
| 14               | 100                        | 100                 | 100          |                                 |
| 15               | 150                        | 135                 | 135          |                                 |
| 16               |                            |                     |              |                                 |
| 17 X100          | 500                        | 500                 | 500          |                                 |
| 18               | 1,000                      | 1,000               | 1,000        |                                 |
| 19               | 1,500                      | 1,500               | 1,500        |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct:<br><u>[Signature]</u><br>Administrative Coordinator |
| Calibration Date: <u>04-22-96</u>                        | <u>04-22-96</u><br>Date  |
| Next Calibration Due: <u>07-22-96</u>                    |  |

|                     |                     |                   |
|---------------------|---------------------|-------------------|
| INSTRUMENT: (E-520) | Serial Number: 5242 | Code Number: 1615 |
|---------------------|---------------------|-------------------|

SOURCE INFORMATION

| CHECK IF USED | SOURCE NUMBERS | ACTIVITY (DPM) | SOURCE TYPE |
|---------------|----------------|----------------|-------------|
| ✓             | 761/84         | 162            | TC-99       |
| ✓             | 762/84         | 1310           | TC-99       |
| ✓             | 763/84         | 18700          | TC-99       |
| ✓             | 764/84         | 146000         | TC-99       |

BETA CALIBRATION

| SOURCE NUMBER | ACTIVITY DPM | INST. RANGE | TOLERANCE | READING GROSS CPM | BKG. CPM | READING NET CPM | EFFICIENCY |
|---------------|--------------|-------------|-----------|-------------------|----------|-----------------|------------|
| 761/84        | 162          | x.01        | ± 10%     | 50                | 40       | 10              | 6.2        |
| 762/84        | 1310         | x.1         | ± 10%     | 240               | 40       | 200             | 15.3       |
| 763/84        | 18700        | x 1.0       | ± 10%     | 4000              | 40       | 3960            | 21.1       |
| 764/84        | 146000       | x 10        | ± 10%     | 35000             | 40       | 34960           | 23.9       |

COMMENTS:  
16.6% Avg. Eff.

|                                  |                              |               |
|----------------------------------|------------------------------|---------------|
| CALIBRATED BY: <i>Jerry Ditt</i> | SIGNATURE: <i>Jerry Ditt</i> | DATE: 4-24-96 |
|----------------------------------|------------------------------|---------------|



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |  |
|----------------------|---|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>  |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>E-520</u> Serial Number <u>5242</u>                         |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | <u>HP177C</u> Serial # _____                                   |
| Work Order #         | <u>I-95-12-208</u>                                  | Calibration Method      | <u>137</u> <u>Pulser s/n 298</u><br><u>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X.01             | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2  |                  | 80                         | 80                  | 80           |                                 |
| 3  |                  | 160                        | 160                 | 160          | Battery: OK                     |
| 4  |                  |                            |                     |              |                                 |
| 5  | X0.1             | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6  |                  | 1                          | 1                   | 1            |                                 |
| 7  |                  | 1.5                        | 1.5                 | 1.5          | Response: OK                    |
| 8  |                  |                            |                     |              |                                 |
| 9  | X1               | 5                          | 4.8                 | 5            | Reset: OK                       |
| 10 |                  | 10                         | 9.5                 | 10           |                                 |
| 11 |                  | 15                         | 14                  | 15           | Speaker: OK                     |
| 12 |                  |                            |                     |              |                                 |
| 13 | X10              | 50                         | 52                  | 55           |                                 |
| 14 |                  | 100                        | 98                  | 100          |                                 |
| 15 |                  | 150                        | 132                 | 135          |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 | X100             | 500                        | 500                 | 500          |                                 |
| 18 |                  | 1,000                      | 1,000               | 1,000        |                                 |
| 19 |                  | 1,500                      | 1,500               | 1,500        |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct:<br><u>[Signature]</u><br>Administrative Coordinator |
| Calibration Date: <u>01-10-96</u>                        | <u>01-10-96</u>  |
| Next Calibration Due: <u>04-10-96</u>                    | Date   |

|                     |                     |                 |
|---------------------|---------------------|-----------------|
| INSTRUMENT: (E-520) | Serial Number: 5242 | Code Number: 15 |
|---------------------|---------------------|-----------------|

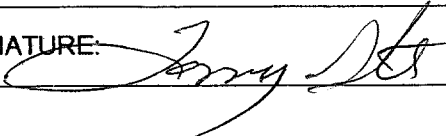
SOURCE INFORMATION

| CHECK IF USED | SOURCE NUMBERS | ACTIVITY (DPM) | SOURCE TYPE |
|---------------|----------------|----------------|-------------|
| ✓             | 761/84         | 162            | TC-99       |
| ✓             | 762/84         | 1310           | TC-99       |
| —             | 763/84         | 18700          | TC-99       |
| ✓             | 764/84         | 146000         | TC-99       |

BETA CALIBRATION

| SOURCE NUMBER | ACTIVITY DPM | INST. RANGE | TOLERANCE | READING GROSS CPM | BKG. CPM | READING NET CPM | EFFICIENCY |
|---------------|--------------|-------------|-----------|-------------------|----------|-----------------|------------|
| 761/84        | 162          | x.01        | ±10%      | 50                | 30       | 20              | 12.3%      |
| 762/84        | 1310         | x.1         | ±10%      | 200               | 30       | 170             | 12.9%      |
| 763/84        | 18,700       | x1          | ±10%      | 4200              | 30       | 4170            | 22.3%      |
| 764/84        | 146,000      | x10         | ±10%      | 4000              | 30       | 39,970          | 27.4%      |

COMMENTS: 18.7% AVG EFF.

|                            |   |               |
|----------------------------|---|---------------|
| CALIBRATED BY: Larry Smith | SIGNATURE:  | DATE: 1-15-96 |
|----------------------------|---|---------------|





**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   |   | INSTRUMENT INFORMATION |                           |
|--|---|------------------------|---------------------------|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer <u>Eberline</u>                     | Model <u>E-520</u>     | Serial Number <u>5242</u> |
| Customer Address: <u>P.O. Box 3700</u> | External Probe(s) <u>HP177C</u>                             | Serial # _____         |                           |
| <u>Pittsburgh, PA 15230</u>            |   |                        |                           |
| Customer P.O.# <u>MB-14027-S</u>       | Calibration Method <u><sup>137</sup>Cs s/n 10263 200mCi</u> |                        |                           |
| Work Order # <u>I-95-09-210</u>        |   |                        | <u>Pulser s/n 101500</u>  |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X.01           | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 160                 | 160          | Battery: OK                     |
| 4                |                            |                     |              |                                 |
| 5 X0.1           | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6                | 1                          | 1                   | 1            |                                 |
| 7                | 1.5                        | 1.5                 | 1.5          | Response: OK                    |
| 8                |                            |                     |              |                                 |
| 9 X1             | 5                          | 5                   | 5            | Reset: OK                       |
| 10               | 10                         | 10.2                | 10.2         |                                 |
| 11               | 15                         | 15.5                | 15.5         | Speaker: OK                     |
| 12               |                            |                     |              |                                 |
| 13 X10           | 50                         | 55                  | 55           |                                 |
| 14               | 100                        | 100                 | 100          |                                 |
| 15               | 150                        | 138                 | 138          |                                 |
| 16               |                            |                     |              |                                 |
| 17 X100          | 500                        | 520                 | 500          |                                 |
| 18               | 1,000                      | 1,050               | 1,000        |                                 |
| 19               | 1,500                      | 1,580               | 1,500        |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u> | I certify that the above information is correct: |
| Calibration Date: <u>09-26-95</u> (Signed)   | <u>[Signature]</u> 09-26-95                      |
| Next Calibration Due: <u>12-26-95</u>        | Administrative Coordinator Date                  |

|                     |                     |                 |
|---------------------|---------------------|-----------------|
| INSTRUMENT: (E-520) | Serial Number: 5242 | Code Number: 15 |
|---------------------|---------------------|-----------------|

SOURCE INFORMATION

| CHECK IF USED | SOURCE NUMBERS | ACTIVITY (DPM) | SOURCE TYPE |
|---------------|----------------|----------------|-------------|
| ✓             | 761/84         | 162            | TC-99       |
| ✓             | 762/84         | 1310           | TC-99       |
| ✓             | 763/84         | 18700          | TC-99       |
| ✓             | 764/84         | 146000         | TC-99       |

BETA CALIBRATION

| SOURCE NUMBER | ACTIVITY DPM | INST. RANGE | TOLERANCE | READING GROSS CPM | BKG. CPM | READING NET CPM | EFFICIENCY |
|---------------|--------------|-------------|-----------|-------------------|----------|-----------------|------------|
| 761/84        | 162          | x.01        | ± 10%     | 60                | 30       | 30              | 18.5%      |
| 762/84        | 1310         | x.1         | ± 10%     | 220               | 30       | 190             | 14.5%      |
| 763/84        | 18,700       | x1.0        | ± 10%     | 4500              | 30       | 4470            | 23.9%      |
| 764/84        | 146,000      | x10         | ± 10%     | 42000             | 30       | 41970           | 28.7%      |

COMMENTS:  
 AVG EFF. : 21.4%  
 C.F. : 4.7

|                            |   |               |
|----------------------------|---|---------------|
| CALIBRATED BY: Larry Smith | SIGNATURE:  | DATE: 9/26/95 |
|----------------------------|---|---------------|



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |  |
|----------------------|---|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>  |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>E-520</u> Serial Number <u>5242</u>                         |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | <u>X</u> Serial # _____  |
| Work Order #         | <u>I-95-07-209</u>                                  | Calibration Method      | <u>137</u> <u>Pulser s/n 318</u><br><u>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X0.01          | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 160                 | 160          | Battery Check: OK               |
| 4                |                            |                     |              |                                 |
| 5 X0.1           | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6                | 1                          | 1                   | 1            |                                 |
| 7                | 1.5                        | 1.5                 | 1.5          | Response: OK                    |
| 8                |                            |                     |              |                                 |
| 9 X1             | 5                          | 5                   | 5            | Reset: OK                       |
| 10               | 10                         | 10                  | 10           |                                 |
| 11               | 15                         | 14.5                | 14.5         | Audio: OK                       |
| 12               |                            |                     |              |                                 |
| 13 X10           | 50                         | 55                  | 55           |                                 |
| 14               | 100                        | 100                 | 100          |                                 |
| 15               | 150                        | 138                 | 138          |                                 |
| 16               |                            |                     |              |                                 |
| 17 X100          | 500                        | 525                 | 500          |                                 |
| 18               | 1,000                      | 1,050               | 1,000        |                                 |
| 19               | 1,500                      | 1,600               | 1,550        |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>William Owen</u> (Signed) | I certify that the above information is correct: |
| Calibration Date: <u>07-28-95</u>                      | <u>William Owen</u> Administrative Coordinator   |
| Next Calibration Due: <u>10-28-95</u>                  | <u>07-28-95</u> Date                             |

|                     |                     |                 |
|---------------------|---------------------|-----------------|
| INSTRUMENT: (E-520) | Serial Number: 5242 | Code Number: 15 |
|---------------------|---------------------|-----------------|

SOURCE INFORMATION

| CHECK IF USED | SOURCE NUMBERS | ACTIVITY (DPM) | SOURCE TYPE |
|---------------|----------------|----------------|-------------|
| ✓             | 761/84         | 162            | TC-99       |
| ✓             | 762/84         | 1310           | TC-99       |
| ✓             | 763/84         | 18700          | TC-99       |
| ✓             | 764/84         | 146000         | TC-99       |

BETA CALIBRATION

| SOURCE NUMBER | ACTIVITY DPM | INST. RANGE | TOLERANCE | READING GROSS CPM | BKG. CPM | READING NET CPM | EFFICIENCY |
|---------------|--------------|-------------|-----------|-------------------|----------|-----------------|------------|
| 761/84        | 162          | X.01        | + 10%     | 60                | 20       | 40              | 24.7%      |
| 762/84        | 1310         | X.1         | + 10%     | 240               | 20       | 220             | 16.8%      |
| 763/84        | 18700        | X1.0        | + 10%     | 4000              | 20       | 3980            | 21.3%      |
| 764/84        | 146,000      | X10         | + 10%     | 40000             | 20       | 39980           | 27.4%      |

COMMENTS:  
 AVG. EFFICIENCY : 22.6%

|                            |                        |              |
|----------------------------|------------------------|--------------|
| CALIBRATED BY: Larry Smith | SIGNATURE: Larry Smith | DATE: 8/3/95 |
|----------------------------|------------------------|--------------|



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |  |
|----------------------|---|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>  |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>E-520</u> Serial Number <u>5242</u>                         |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | <u>HP270</u> Serial # _____                                    |
| Work Order #         | <u>I-95-03-214</u>                                  | Calibration Method      | <u>137</u> <u>Pulser s/n 301</u><br><u>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X0.01            | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2  |                  | 80                         | 80                  | 80           |                                 |
| 3  |                  | 160                        | 165                 | 165          | Battery Check: OK               |
| 4  |                  |                            |                     |              |                                 |
| 5  | X0.1             | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical zero: OK             |
| 6  |                  | 1                          | 1                   | 1            |                                 |
| 7  |                  | 1.5                        | 1.5                 | 1.5          |                                 |
| 8  |                  |                            |                     |              |                                 |
| 9  | X1               | 5                          | 5                   | 5            |                                 |
| 10 |                  | 10                         | 10                  | 10           |                                 |
| 11 |                  | 15                         | 15                  | 15           |                                 |
| 12 |                  |                            |                     |              |                                 |
| 13 | X10              | 50                         | 55                  | 55           |                                 |
| 14 |                  | 100                        | 100                 | 100          |                                 |
| 15 |                  | 150                        | 138                 | 138          |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 | X100             | 500                        | 500                 | 500          |                                 |
| 18 |                  | 1,000                      | 1,020               | 1,020        |                                 |
| 19 |                  | 1,500                      | 1,550               | 1,550        |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>James Christopher</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>03-23-95</u>                              | <u>James M. DeB</u> 03-23-95                     |
| Next Calibration Due: <u>06-23-95</u>                          | Administrative Coordinator Date                  |

|                     |                     |                 |
|---------------------|---------------------|-----------------|
| INSTRUMENT: (E-520) | Serial Number: 5242 | Code Number: 15 |
|---------------------|---------------------|-----------------|

SOURCE INFORMATION

| CHECK IF USED | SOURCE NUMBERS | ACTIVITY (DPM) | SOURCE TYPE |
|---------------|----------------|----------------|-------------|
| ✓             | 761/84         | 162            | TC-99       |
| ✓             | 762/84         | 1310           | TC-99       |
| ✓             | 763/84         | 18700          | TC-99       |
| ✓             | 764/84         | 146000         | TC-99       |

BETA CALIBRATION

| SOURCE NUMBER | ACTIVITY DPM | INST. RANGE | TOLERANCE | READING GROSS CPM | BKG. CPM | READING NET CPM | EFFICIENCY |
|---------------|--------------|-------------|-----------|-------------------|----------|-----------------|------------|
| 761/84        | 162          | X.01        | ± 10%     | 70                | 40       | 30              | 18.5%      |
| 762/84        | 1310         | X.1         | ± 10%     | 300               | 40       | 260             | 19.8%      |
| 763/84        | 18700        | X 1.0       | ± 10%     | 4200              | 40       | 4160            | 22.2%      |
| 764/84        | 146,000      | X 10        | ± 10%     | 40,000            | 40       | 39,960          | 27.4%      |

COMMENTS:  
AVERAGE EFFICIENCY = 22.0%

|                               |                                  |               |
|-------------------------------|----------------------------------|---------------|
| CALIBRATED BY: CARMEN VERGARI | SIGNATURE: <i>Carmen Vergari</i> | DATE: 3-27-95 |
|-------------------------------|----------------------------------|---------------|



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   |  | INSTRUMENT INFORMATION |                           |
|--|--|------------------------|---------------------------|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer <u>Eberline</u>    | Model <u>E-520</u>     | Serial Number <u>5242</u> |
| Customer Address: <u>P.O. Box 3700</u> | External Probe(s) _____                    | Serial # _____         |                           |
| <u>Pittsburgh, PA 15230</u>            |  |                        |                           |
| Customer P.O.# <u>MB--14027-S</u>      | Calibration Method <u>137Cs s/n 101500</u> | <u>200mCi</u>          |                           |
| Work Order # <u>I-94-12-219</u>        |  |                        |                           |

### INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X0.01            | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2  |                  | 80                         | 80                  | 80           |                                 |
| 3  |                  | 160                        | 160                 | 160          | Battery Check: OK               |
| 4  | X0.1             | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 5  |                  | 1                          | 1                   | 1            |                                 |
| 6  |                  | 1.5                        | 1.5                 | 1.5          | Speaker: OK                     |
| 7  |                  |                            |                     |              |                                 |
| 8  | X1               | 5                          | 5                   | 5            | Reset: OK                       |
| 9  |                  | 10                         | 10                  | 10           |                                 |
| 10 |                  | 15                         | 15                  | 15           | Response: OK                    |
| 11 |                  |                            |                     |              |                                 |
| 12 | X10              | 50                         | 52                  | 55           |                                 |
| 13 |                  | 100                        | 94                  | 100          |                                 |
| 14 |                  | 150                        | 130                 | 138          |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 | X100             | 500                        | 500                 | 500          |                                 |
| 17 |                  | 1,000                      | 1,000               | 1,000        |                                 |
| 18 |                  | 1,500                      | 1,500               | 1,500        |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u> | I certify that the above information is correct:   |
| Calibration Date: <u>12-19-94</u> (Signed)   | <u>[Signature]</u> <u>12-19-94</u>                 |
| Next Calibration Due: <u>03-19-95</u>        | Administrative Coordinator <u>[Signature]</u> Date |

|                     |                     |                 |
|---------------------|---------------------|-----------------|
| INSTRUMENT: (E-520) | Serial Number: 5242 | Code Number: 15 |
|---------------------|---------------------|-----------------|

SOURCE INFORMATION

| CHECK IF USED | SOURCE NUMBERS | ACTIVITY (DPM) | SOURCE TYPE |
|---------------|----------------|----------------|-------------|
| ✓             | 761/84         | 162            | TC-99       |
|               | 762/84         | 1310           | TC-99       |
| ✓             | 763/84         | 18700          | TC-99       |
|               | 764/84         | 146000         | TC-99       |

BETA CALIBRATION

| SOURCE NUMBER | ACTIVITY DPM | INST. RANGE | TOLERANCE | READING GROSS CPM | BKG. CPM | READING NET CPM | EFFICIENCY |
|---------------|--------------|-------------|-----------|-------------------|----------|-----------------|------------|
| 761/84        | 162          | x.01        | ±10%      | 80                | 40       | 40              | 24.7%      |
| 762/84        | 1310         | x0.1        | ±10%      | 250               | 40       | 210             | 16.0%      |
| 763/84        | 18700        | x1          | ±10%      | 4500              | 40       | 4460            | 23.9%      |
| 764/84        | 146000       | x10         | ±10%      | 40,000            | 40       | 39960           | 27.4%      |

COMMENTS: AVERAGE EFFICIENCY 23%

|                          |                             |                |
|--------------------------|-----------------------------|----------------|
| CALIBRATED BY: V. TAYLOR | SIGNATURE: <i>V. Taylor</i> | DATE: 12-20-94 |
|--------------------------|-----------------------------|----------------|





**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |  | INSTRUMENT INFORMATION  |   |
|----------------------|--|-------------------------|---|
| Customer Name:       | <u>Westinghouse</u>  | Instrument Manufacturer | <u>Eberline</u>   |
| Customer Address:    | <u>Avenue A &amp; West Street<br/>Pittsburgh, PA 15221</u> | Model                   | <u>E-520</u> Serial Number <u>5242</u>                            |
| Customer P.O.#       | <u>MB-14027-A</u>  | External Probe(s)       | <u>HP177C</u> Serial # _____                                      |
| Work Order #         | <u>I-94-08-218</u>   | Calibration Method      | <u>137</u> <u>Pulser s/n 101500</u><br><u>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X0.01            | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2  |                  | 80                         | 80                  | 80           |                                 |
| 3  |                  | 160                        | 160                 | 160          | Mechanical Zero: OK             |
| 4  | X0.1             | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Battery Check: OK               |
| 5  |                  | 1                          | 1                   | 1            |                                 |
| 6  |                  | 1.5                        | 1.5                 | 1.5          | Reset: OK                       |
| 7  |                  |                            |                     |              |                                 |
| 8  | X1               | 5                          | 5.2                 | 5.2          | Response: OK                    |
| 9  |                  | 10                         | 10.5                | 10.5         |                                 |
| 10 |                  | 15                         | 15.8                | 15.8         | Speaker: OK                     |
| 11 |                  |                            |                     |              |                                 |
| 12 | X10              | 50                         | 52                  | 55           |                                 |
| 13 |                  | 100                        | 98                  | 100          |                                 |
| 14 |                  | 150                        | 132                 | 135          |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 | X100             | 500                        | 520                 | 520          |                                 |
| 17 |                  | 1,000                      | 1,030               | 1,030        |                                 |
| 18 |                  | 1,500                      | 1,570               | 1,570        |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|                           |                          |  |                      |
|---------------------------|--------------------------|--|----------------------|
| Instrument Calibrated by: |                          | I certify that the above information is correct: |                      |
| Calibration Date:         | <u>08-26-94</u> (Signed) | Administrative Coordinator                       | <u>08-26-94</u> Date |
| Next Calibration Due:     | <u>11-26-94</u>          |  |                      |

ALPHA / BETA  
EFFICIENCY FOR VENDOR CALIBRATION

INSTRUMENT:  E-520 [ ] PAC-4G S/N #: 5242 CODE #: 15

| CALIBRATION SOURCE INVENTORY |        |        |                |               |        |        |                |
|------------------------------|--------|--------|----------------|---------------|--------|--------|----------------|
| CHECK IF USED                | TYPE   | NUMBER | ACTIVITY (DPM) | CHECK IF USED | TYPE   | NUMBER | ACTIVITY (DPM) |
|                              | Pu-239 | 7345   | 2210           | X             | Tc-99  | 762/84 | 1310           |
|                              | Pu-239 | 5308   | 31300          | X             | Tc-99  | 763/84 | 18700          |
|                              | Pu-239 | 7346   | 231100         | X             | Tc-99  | 764/84 | 146000         |
|                              | Pu-239 | 7347   | 2212000        |               | Cs-137 | 84-9   |                |
| X                            | Tc-99  | 761/84 | 162            |               | Cs-137 | T-993  |                |

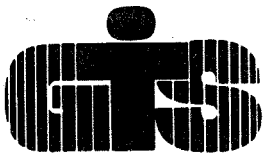
| ALPHA CALIBRATION             |                  |             |           |                     |                    |                   |            |
|-------------------------------|------------------|-------------|-----------|---------------------|--------------------|-------------------|------------|
| SOURCE NUMBERS                | CURRENT ACTIVITY | INST. RANGE | TOLERANCE | READING (GROSS CPM) | BACKGROUND CPM     | READING (NET CPM) | EFFICIENCY |
|                               |                  |             |           |                     |                    |                   |            |
|                               |                  |             |           |                     |                    |                   |            |
|                               |                  |             |           |                     |                    |                   |            |
|                               |                  |             |           |                     |                    |                   |            |
| EFFICIENCY FORMULA: CPM / DPM |                  |             |           |                     | AVERAGE EFFICIENCY |                   |            |

| BETA CALIBRATION              |                     |             |           |                     |                    |                   |            |
|-------------------------------|---------------------|-------------|-----------|---------------------|--------------------|-------------------|------------|
| SOURCE NUMBERS                | CURRENT ACTIVITY    | INST. RANGE | TOLERANCE | READING (GROSS CPM) | BACKGROUND CPM     | READING (NET CPM) | EFFICIENCY |
| 761/84                        | 162 <sup>DPM</sup>  | X.01        | ± 10%     | 80                  | 40                 | 40                | 24.7%      |
| 762/84                        | 1310                | X.1         |           | 220                 | 40                 | 180               | 13.8%      |
| 763/84                        | 18700               | X.1         |           | 4500                | 40                 | 4460              | 23.9%      |
| 764/84                        | 145995 <sup>V</sup> | X.10        | ∇         | 40000               | 40                 | 39960             | 27.4%      |
| EFFICIENCY FORMULA: CPM / DPM |                     |             |           |                     | AVERAGE EFFICIENCY |                   |            |
|                               |                     |             |           |                     | 22.5%              |                   |            |

COMMENTS / REMARKS

Calibrate w/ HP-260 Probe

CALIBRATED BY: Todd Brautigam SIGNATURE: *T. Brautigam* DATE: 8-30-94



GTS Instrument Services  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |  | INSTRUMENT INFORMATION  |  |
|----------------------|--|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>  | Instrument Manufacturer | <u>Eberline</u>  |
| Customer Address:    | <u>Avenue A &amp; West Street</u><br><u>Pittsburgh, PA 15221</u> | Model                   | <u>E-520</u> Serial Number <u>5242</u>                     |
| Customer P.O.#       | <u>MB-14027-S</u>  | External Probe(s)       | <u>HP270</u> Serial # _____                                |
| Work Order #         | <u>I-94-05-222</u>   | Calibration Method      | <u>137 Cs s/n 10263 200mCi</u><br><u>Pulser s/n 101500</u> |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X0.01            | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2  |                  | 80                         | 80                  | 80           |                                 |
| 3  |                  | 160                        | 160                 | 160          | Battery Check: OK               |
| 4  |                  |                            |                     |              |                                 |
| 5  | X0.1             | 0.5 mR/hr                  | 0.48 mR/hr          | 0.48 mR/hr   | Mechanical Zero: OK             |
| 6  |                  | 1                          | 0.95                | 0.95         |                                 |
| 7  |                  | 1.5                        | 1.5                 | 1.5          | Response: OK                    |
| 8  |                  |                            |                     |              |                                 |
| 9  | X1               | 5                          | 4.8                 | 4.8          | Reset: OK                       |
| 10 |                  | 10                         | 10                  | 10           |                                 |
| 11 |                  | 15                         | 15.5                | 15.5         | Speaker: OK                     |
| 12 |                  |                            |                     |              |                                 |
| 13 | X10              | 50                         | 53                  | 53           |                                 |
| 14 |                  | 100                        | 100                 | 100          |                                 |
| 15 |                  | 150                        | 137                 | 137          |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 | X100             | 500                        | 500                 | 500          |                                 |
| 18 |                  | 1,000                      | 980                 | 980          |                                 |
| 19 |                  | 1,500                      | 1,420               | 1,420        |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>05-23-94</u>                        | <u>[Signature]</u> <u>05-23-94</u>               |
| Next Calibration Due: <u>08-23-94</u>                    | Administrative Coordinator Date                  |

ALPHA / BETA  
EFFICIENCY FOR VENDOR CALIBRATION

*22*

INSTRUMENT: [] E-520 [ ] PAC-4G S/N #: ~~5248~~ 5242 CODE #: 15

| CALIBRATION SOURCE INVENTORY |        |        |                |               |        |        |                |
|------------------------------|--------|--------|----------------|---------------|--------|--------|----------------|
| CHECK IF USED                | TYPE   | NUMBER | ACTIVITY (DPM) | CHECK IF USED | TYPE   | NUMBER | ACTIVITY (DPM) |
|                              | Pu-239 | 7345   | 2210           | ✓             | Tc-99  | 762/84 | 1310           |
|                              | Pu-239 | 5308   | 31300          | ✓             | Tc-99  | 763/84 | 18700          |
|                              | Pu-239 | 7346   | 231100         | ✓             | Tc-99  | 764/84 | 146000         |
|                              | Pu-239 | 7347   | 2212000        |               | Cs-137 | 84-9   |                |
| ✓                            | Tc-99  | 761/84 | 162            |               | Cs-137 | T-993  |                |

| ALPHA CALIBRATION             |                  |             |           |                     |                    |                   |            |
|-------------------------------|------------------|-------------|-----------|---------------------|--------------------|-------------------|------------|
| SOURCE NUMBERS                | CURRENT ACTIVITY | INST. RANGE | TOLERANCE | READING (GROSS CPM) | BACKGROUND CPM     | READING (NET CPM) | EFFICIENCY |
|                               |                  |             |           |                     |                    |                   |            |
|                               |                  |             |           |                     |                    |                   |            |
|                               |                  |             |           |                     |                    |                   |            |
|                               |                  |             |           |                     |                    |                   |            |
| EFFICIENCY FORMULA: CPM / DPM |                  |             |           |                     | AVERAGE EFFICIENCY |                   |            |

| BETA CALIBRATION              |                  |             |           |                     |                    |                   |            |
|-------------------------------|------------------|-------------|-----------|---------------------|--------------------|-------------------|------------|
| SOURCE NUMBERS                | CURRENT ACTIVITY | INST. RANGE | TOLERANCE | READING (GROSS CPM) | BACKGROUND CPM     | READING (NET CPM) | EFFICIENCY |
| 761/84                        | 162 dpm          | x.01        | ±10%      | 60                  | 30                 | 30                | 18.5       |
| 762/84                        | 1310             | x.1         | ↓         | 220                 | 30                 | 190               | 14.5       |
| 763/84                        | 18700            | x.1         | ↓         | 3800                | 30                 | 3770              | 20.1       |
| 764/84                        | 146000           | x.10        | ↓         | 40000               | 30                 | 39970             | 27.4       |
| EFFICIENCY FORMULA: CPM / DPM |                  |             |           |                     | AVERAGE EFFICIENCY |                   |            |
|                               |                  |             |           |                     | 20.1               |                   |            |

COMMENTS / REMARKS

*CALIBRATE WITH HP 260 PAPER*

CALIBRATED BY: *Lacey Smith* SIGNATURE: *Lacey Smith* DATE: *5-24-94*



ALPHA / BETA  
 EFFICIENCY FOR VENDOR CALIBRATION

INSTRUMENT:  E-520  PAC-4G S/N #: 5242 CODE #: 15

| CALIBRATION SOURCE INVENTORY |        |        |                |               |        |        |                |
|------------------------------|--------|--------|----------------|---------------|--------|--------|----------------|
| CHECK IF USED                | TYPE   | NUMBER | ACTIVITY (DPM) | CHECK IF USED | TYPE   | NUMBER | ACTIVITY (DPM) |
|                              | Pu-239 | 7345   | 2210           | X             | Tc-99  | 762/84 | 1310           |
|                              | Pu-239 | 5308   | 31300          | X             | Tc-99  | 763/84 | 18700          |
|                              | Pu-239 | 7346   | 231100         | X             | Tc-99  | 764/84 | 146000         |
|                              | Pu-239 | 7347   | 2212000        |               | Cs-137 | 84-9   |                |
|                              | Tc-99  | 761/84 | 162            |               | Cs-137 | T-993  |                |

| ALPHA CALIBRATION             |                  |             |           |                     |                    |                   |            |
|-------------------------------|------------------|-------------|-----------|---------------------|--------------------|-------------------|------------|
| SOURCE NUMBERS                | CURRENT ACTIVITY | INST. RANGE | TOLERANCE | READING (GROSS CPM) | BACKGROUND CPM     | READING (NET CPM) | EFFICIENCY |
|                               |                  |             |           |                     |                    |                   |            |
|                               |                  |             |           |                     |                    |                   |            |
|                               |                  |             |           |                     |                    |                   |            |
|                               |                  |             |           |                     |                    |                   |            |
| EFFICIENCY FORMULA: CPM / DPM |                  |             |           |                     | AVERAGE EFFICIENCY |                   |            |

| BETA CALIBRATION              |                  |             |           |                     |                    |                   |            |
|-------------------------------|------------------|-------------|-----------|---------------------|--------------------|-------------------|------------|
| SOURCE NUMBERS                | CURRENT ACTIVITY | INST. RANGE | TOLERANCE | READING (GROSS CPM) | BACKGROUND CPM     | READING (NET CPM) | EFFICIENCY |
| 762/84                        | 1310             | X.01        | ± 10%     | 230                 | 20                 | 210               | 16%        |
| 762/84                        | 1310             | X.1         | ± 10%     | 250                 | 20                 | 230               | 17.6%      |
| 763/84                        | 18700            | X1          | ± 10%     | 4500                | 20                 | 4480              | 23.9%      |
| 764/84                        | 146000           | X10         | ± 10%     | 42000               | 20                 | 42000             | 28.8%      |
| EFFICIENCY FORMULA: CPM / DPM |                  |             |           |                     | AVERAGE EFFICIENCY |                   | 21.6%      |

COMMENTS / REMARKS

CALIBRATED BY: *[Signature]* SIGNATURE: *[Signature]* DATE: 2/19/94



HEALTH PHYSICS inc.

*Rec'd 11/9/93 UPS*

2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|  |                                |
|--|--------------------------------|
| SHIPPING ADDRESS   | BILLING ADDRESS (If Different) |
| <i>WEC<br/>AVE "A" * WEST ST<br/>PITTSBURGH PA 15112</i> |                                |

CONTACT: *L. SMITH* PHONE: ( ) DATE: *11/4/93* P.O. # *MAB93285*

Receiving Comments:

Instrument Received:  Within Toler.  $\pm 10\%$    $\pm 10-20\%$   Out Toler.  Requires Repair

Mfg. Inst. *EGRELINE* Model # *E-520* Serial # *5202*  
 Detector " " Model # *NP177C* Serial # *5208*

CALIBRATION  REPAIR  SALE  LOAN By: *[Signature]*

| scale       | source | reading | scale      | source | reading | scale       | source | reading |
|-------------|--------|---------|------------|--------|---------|-------------|--------|---------|
|             | mR/hr  |         |            | mR/hr  |         |             | mR/hr  |         |
| <i>X.01</i> | .1     | .1      | <i>X1</i>  | 4      | 4.0     | <i>X100</i> | 404    | 400     |
|             | .2     | .2      |            | 13     | 13.2    | <i>INT</i>  | 800    | 802     |
| <i>X.1</i>  | .4     | .39     |            | 40     | 40      |             |        |         |
|             | 1.5    | 1.5     | <i>X10</i> | 120    | 122     |             |        |         |

*Rec 11-8-93 UPS # 186-596*

Calibration Source:  GAMMA  ALPHA  BETA  ELECTRONIC  OTHER  
 Description:  ra-226  cs-137  pu-239  sr-90  mp-1

RESPONSE GRAPH *N/A*

|  |  |  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|--|--|
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |

PROBE EFFICIENCIES  
 Alpha *—* % Beta *—* %  
 Check Source Reading *N/A*  
 Battery Check Reading *16 mR/hr*  
 Detector Angle *PERPENDICULAR*  
 Corrections *N/A ± 10% TO 1 R/hr*

TEMP/HUMIDITY *71.6°F / 33%*

Maintenance & Comments *REPLACED (2) CELLS AND OK*

|             |                  |              |  |
|-------------|------------------|--------------|--|
| CALIBRATION |                  | 40.00        | QA Dept. <i>[Signature]</i> Warranty <i>30</i> |
| LABOR       |                  |              | Shipping <i>UPS</i> Date <i>11/4/93</i>        |
| MATERIALS   | <i>(2) CELLS</i> | <i>1.500</i> | Pick-Up <i>—</i> Date <i>— / — / —</i>         |
| &           |                  |              | This Certificate Expires In <i>3</i> Months    |
| SALES       |                  |              | Re-Calibrate On Or Before <i>2/4/94</i>        |
| SHIPPING    | <i>UPS</i>       |              | Job ID #                                       |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.

ALPHA / BETA  
EFFICIENCY FOR VENDOR CALIBRATION

INSTRUMENT:  E-520  PAC-4G S/N #: 5242 CODE #: 15

| CALIBRATION SOURCE INVENTORY |                   |        |                |               |        |        |                |
|------------------------------|-------------------|--------|----------------|---------------|--------|--------|----------------|
| CHECK IF USED                | TYPE              | NUMBER | ACTIVITY (DPM) | CHECK IF USED | TYPE   | NUMBER | ACTIVITY (DPM) |
|                              | Pu-239            | 7345   | 2210           | ✓             | Tc-99  | 762/84 | 1310           |
|                              | Pu-239            | 5308   | 31300          | ✓             | Tc-99  | 763/84 | 18700          |
|                              | <del>Pu-239</del> | 7346   | 231100         | ✓             | Tc-99  | 764/84 | 146000         |
|                              | Pu-239            | 7347   | 2212000        |               | Cs-137 | 84-9   |                |
|                              | Tc-99             | 761/84 | 162            |               | Cs-137 | T-993  |                |

| ALPHA CALIBRATION             |                  |             |           |                     |                    |                   |            |
|-------------------------------|------------------|-------------|-----------|---------------------|--------------------|-------------------|------------|
| SOURCE NUMBERS                | CURRENT ACTIVITY | INST. RANGE | TOLERANCE | READING (GROSS CPM) | BACKGROUND CPM     | READING (NET CPM) | EFFICIENCY |
|                               |                  |             |           |                     |                    |                   |            |
|                               |                  |             |           |                     |                    |                   |            |
|                               |                  |             |           |                     |                    |                   |            |
|                               |                  |             |           |                     |                    |                   |            |
| EFFICIENCY FORMULA: CPM / DPM |                  |             |           |                     | AVERAGE EFFICIENCY |                   |            |

| BETA CALIBRATION              |                  |             |           |                     |                    |                   |            |
|-------------------------------|------------------|-------------|-----------|---------------------|--------------------|-------------------|------------|
| SOURCE NUMBERS                | CURRENT ACTIVITY | INST. RANGE | TOLERANCE | READING (GROSS CPM) | BACKGROUND CPM     | READING (NET CPM) | EFFICIENCY |
| 762/84                        | 1310 DPM         | X.61        | ± 10%     | 190                 | 40                 | 150               | 11.4%      |
| 762/84                        | 1310 DPM         | X.1         | ± 10%     | 300                 | 40                 | 260               | 21%        |
| 763/84                        | 18700 DPM        | X.1         | ± 10%     | 3000                | 40                 | 2960              | 16%        |
| 764/84                        | 146000 DPM       | X.10        | ± 10%     | 35000               | 40                 | 35000             | 23.9%      |
| EFFICIENCY FORMULA: CPM / DPM |                  |             |           |                     | AVERAGE EFFICIENCY |                   | 18.3%      |

COMMENTS / REMARKS

CALIBRATED BY: *[Signature]* SIGNATURE: *[Signature]* DATE: 11-9-93





HEALTH PHYSICS inc.

2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|   |                                |
|---|--------------------------------|
| SHIPPING ADDRESS                                  | BILLING ADDRESS (If Different) |
| 10, E. C.<br>Ave "A" & West St.<br>Pgh., PA 15112 | SAME                           |

CONTACT: C. Smith PHONE: (—) 228-3674 DATE: 5/11/93 P.O.# MA293285

Receiving Comments: Calibration.

Instrument Received:  Within Toler. ±10%  ±10-20%  Out Toler.  Requires Repair

Mfg. Inst. Eberline Model # E-520 Serial # 5242  
 Detector 11 Model # HP-177C Serial # 506M

CALIBRATION  REPAIR  SALE  LOAN By: J. Douglas

| scale       | source | reading | scale      | source | reading | scale       | source           | reading |
|-------------|--------|---------|------------|--------|---------|-------------|------------------|---------|
|             | mR/hr  |         |            | mR/hr  |         |             | mR/hr            |         |
| <u>X.01</u> | .1     | .1      | <u>X1</u>  | 4      | 4.1     | <u>X100</u> | 404              | 410     |
|             | .2     | .19     |            | 13     | 13.9    |             | 200              | 205     |
| <u>X.1</u>  | .4     | .4      | <u>X10</u> | 40     | 42      |             | <u>INT - 6M!</u> |         |
|             | 1.5    | 1.5     |            | 120    | 117     |             |                  |         |

Calibration Source:  GAMMA  ALPHA  BETA  ELECTRONIC  OTHER

Description:  ra-226  cs-137  pu-239  sr-90  mp-1

|                                   |  |
|-----------------------------------|--|
| RESPONSE GRAPH <u>N/A</u>         | PROBE EFFICIENCIES <u>N/A</u>          |
|                                   | Alpha _____ % Beta _____ %             |
|                                   | Check Source Reading <u>N/A</u>        |
|                                   | Battery Check Reading <u>16 MR/HR</u>  |
|                                   | Detector Angle <u>Perpendicular</u>    |
|                                   | Corrections <u>N/A ± 10% to 1-R/HR</u> |
| TEMP/HUMIDITY <u>69.5°F / 49%</u> |  |

Maintenance & Comments Replaced (2) D Cells, HV-OK.

|   |                     |
|---|---------------------|
| Tested, Inspected & Calibrated              |                     |
| CALIBRATION <u>Contract</u>                 | 40.00               |
| LABOR                                       |                     |
| MATERIALS <u>(2) D Cells 1.50ea</u>         | 3.00                |
| &   |                     |
| SALES                                       |                     |
| SHIPPING <u>UPS</u>                         |                     |
| QA Dept. <u>SW</u>                          | Warranty _____      |
| Shipping <u>UPS</u>                         | Date <u>5/11/93</u> |
| Pick-Up _____                               | Date <u>7/7</u>     |
| This Certificate Expires In <u>3 Months</u> |                     |
| Re-Calibrate On Or Before <u>11/11/93</u>   |                     |
| Job ID # <u>52421</u>                       |                     |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.

ALPHA / BETA  
EFFICIENCY FOR VENDOR CALIBRATION

INSTRUMENT: [ ] E-520 [ ] PAC-4G S/N #: 5242 CODE #: 15

| CALIBRATION SOURCE INVENTORY |                   |        |                |               |        |        |                |
|------------------------------|-------------------|--------|----------------|---------------|--------|--------|----------------|
| CHECK IF USED                | TYPE              | NUMBER | ACTIVITY (DPM) | CHECK IF USED | TYPE   | NUMBER | ACTIVITY (DPM) |
|                              | Pu-239            | 7345   | 2210           | ✓             | Tc-99  | 762/84 | 1310           |
|                              | Pu-239            | 5308   | 31300          | ✓             | Tc-99  | 763/84 | 18700          |
|                              | <del>Pu-239</del> | 7346   | 231100         | ✓             | Tc-99  | 764/84 | 146000         |
|                              | Pu-239            | 7347   | 2212000        |               | Cs-137 | 84-9   |                |
|                              | Tc-99             | 761/84 | 162            | ✓             | Cs-137 | T-993  | 29900          |

| ALPHA CALIBRATION             |                  |             |           |                     |                    |                   |            |
|-------------------------------|------------------|-------------|-----------|---------------------|--------------------|-------------------|------------|
| SOURCE NUMBERS                | CURRENT ACTIVITY | INST. RANGE | TOLERANCE | READING (GROSS CPM) | BACKGROUND CPM     | READING (NET CPM) | EFFICIENCY |
|                               |                  |             |           |                     |                    |                   |            |
|                               |                  |             |           |                     |                    |                   |            |
|                               |                  |             |           |                     |                    |                   |            |
| EFFICIENCY FORMULA: CPM / DPM |                  |             |           |                     | AVERAGE EFFICIENCY |                   |            |

| BETA CALIBRATION              |                  |             |           |                     |                    |                   |            |
|-------------------------------|------------------|-------------|-----------|---------------------|--------------------|-------------------|------------|
| SOURCE NUMBERS                | CURRENT ACTIVITY | INST. RANGE | TOLERANCE | READING (GROSS CPM) | BACKGROUND CPM     | READING (NET CPM) | EFFICIENCY |
| 762/84                        | 1310             | X.01        | ±10%      | 120                 | 30                 | 90                | 6.9%       |
| 763/84                        | 18699            | X1          | ±10%      | 3700                | 30                 | 3670              | 19.6%      |
| 764/84                        | 145996           | X10         | ±10%      | 40000               | 30                 | 39                | 27.4%      |
| T-993                         | 29258            | X1          | ±10%      | 8000                | 30                 | 7970              | 27.2%      |
| EFFICIENCY FORMULA: CPM / DPM |                  |             |           |                     | AVERAGE EFFICIENCY |                   | 20.2%      |

COMMENTS / REMARKS

PROBE DESCRIPTION: Luolum 44-9

CALIBRATED BY: *[Signature]* SIGNATURE: *[Signature]* DATE: 8-26-93

=====
   
! IH&S #1104 !
   
! LRD 07/90 !
   
=====

\*\*\*\*\*
   
\* PORTABLE SURVEY \*
   
\* INSTRUMENT CALIBRATION \*
   
\*\*\*\*\*

EBERLINE

1. Instrument = GM - E 520 2. Ser.No. 5242 3. Cap No. LO965

4. Log Book Tab #11 (Forest Hills) 5. Calibration Sources = Cs-137 (130 mCi)
   
Cs-137 (70 Ci)

Date Of Decay Correction 04/27/93

Source Activity = 56.469 Ci 104.87 mCi
   
Radiation @ 1 Meter With No Attenuation (70 Ci) = 16.392 R/hr
   
Radiation @ 3 Meters With No Attenuation (70 Ci) = 1.821 R/hr

6. Calibration Information

X 0.01 Scale (USE TENTH VALUE LAYER WITH SETTINGS BELOW).

|                  |           |                  |           |
|------------------|-----------|------------------|-----------|
| Source           | 130 mCi   | Calib. Pt. mR/hr | 0.1       |
| ORIGINAL DIST.   | 2500      | Distance (mm)    | 2342      |
| Table Height     | 18.5 cm * | Tolerance        | N.A.      |
| Attenuators (on) | 4         | Meter Reading    | <u>.1</u> |

|                  |                      |            |            |            |           |           |
|------------------|----------------------|------------|------------|------------|-----------|-----------|
| Meter Scale      | X 0.1                | X 0.1      | X 0.1      | X 1        | X 1       | X 1       |
| Source           | 130 mCi              | 130 mCi    | 130 mCi    | 130 mCi    | 130 mCi   | 130 mCi   |
| ORIGINAL DIST.   | 3480                 | 3600       | 2900       | 1605       | 1670      | 1360      |
| Table Height     | 18.5 cm * (SEE NOTE) |            |            |            |           |           |
| Calib. Pt. mR/hr | 0.5                  | 1.0        | 1.5        | 5.0        | 10.0      | 15.0      |
| Distance (mm)    | 3260                 | 3372       | 2716       | 1503       | 1564      | 1274      |
| Attenuators (on) | 4                    | 2          | 2          | 2          | NONE      | NONE      |
| Tolerance +10%   | N.A.                 | 1.1        | 1.65       | 5.5        | 11.0      | 16.5      |
| -10%             | N.A.                 | 0.90       | 1.35       | 4.5        | 9.0       | 13.5      |
| Meter Reading    | <u>.5</u>            | <u>1.0</u> | <u>1.5</u> | <u>5.0</u> | <u>10</u> | <u>15</u> |

|                  |   |            |            |            |            |             |
|------------------|---|------------|------------|------------|------------|-------------|
| Meter Scale      | X 10  | X 10       | X 10       | X 100      | X 100      | X 100       |
| Source           | 70 Ci   | 70 Ci      | 70 Ci      | 70 Ci      | 70 Ci      | 70 Ci       |
| ORIGINAL DIST.   | 2625  | 2600       | 2990       | 2800       | 2840       | 2320        |
| Table Height     | 18.5 cm * (SEE NOTE) 34.5 cm (TOP WOOD PLATE) |            |            |            |            |             |
| Calib. Pt. mR/hr | 50  | 100        | 150        | 500        | 1000       | 1500        |
| Distance (mm)    | 2459  | 2435       | 2801       | 2623       | 2660       | 2173        |
| Attenuators (on) | 4,10  | 2,10       | 10         | 4          | 2          | 2           |
| Tolerance +10%   | 55  | 110        | 165        | 550        | 1100       | 1650        |
| -10%             | 45  | 90         | 135        | 450        | 900        | 1350        |
| Meter Reading    | <u>54</u>                                     | <u>100</u> | <u>140</u> | <u>500</u> | <u>910</u> | <u>1400</u> |

7. SOURCE CHECK: Cs-137 # 232 = 5 mR/hr CONDITION GOOD

NOTE: \* IF CALIBRATING REMOTELY TABLE HEIGHT IS 34.5 cm (TOP OF WOOD)

COMMENTS EFFICIENCY

Luolum 44 PANCAKE  
EFF = 16.2% CF = 6.17

8. Calib Date 4/27/93  
9. Signature [Signature]

**CODE NUMBER 17 & 18**

**REPORT #001**



GTS Instrument Services  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 724/733-1900 Fax: 724/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                 | INSTRUMENT INFORMATION                                      |
|--------------------------------------|---|
| Customer Name: <u>Westinghouse</u>   | Instrument Manufacturer <u>Eberline</u>                     |
| Customer Address: <u>PO Box 3700</u> | Model <u>E-520</u> Serial Number <u>5245</u>                |
| <u>Pittsburgh, PA 15230</u>          | External Probe(s) <u>HP270</u> Serial # _____               |
| Customer P.O.# _____                 | Calibration Method <u><sup>137</sup>Cs s/n 10263 200mCi</u> |
| Work Order # <u>I-99-02-210</u>      |   |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X.01           | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 160                 | 160          | Battery: OK                     |
| 4                |                            |                     |              |                                 |
| 5 X0.1           | 0.5 mR/hr                  | Replace Tube        | 0.5 mR/hr    | Mechanical Zero: OK             |
|                  | 1                          |                     | 1            |                                 |
| 7                | 1.5                        |                     | 1.45         | Reset: OK                       |
| 8                |                            |                     |              |                                 |
| 9 X1             | 5                          |                     | 5            | Response: OK                    |
| 10               | 10                         |                     | 10           |                                 |
| 11               | 15                         |                     | 15           | Audio: OK                       |
| 12               |                            |                     |              |                                 |
| 13 X10           | 50                         |                     | 55           |                                 |
| 14               | 100                        |                     | 100          |                                 |
| 15               | 150                        |                     | 140          |                                 |
| 16               |                            |                     |              |                                 |
| 17 X100          | 500                        |                     | 500          |                                 |
| 18               | 1,000                      |                     | 1,050        |                                 |
| 19               | 1,500                      |                     | 1,400        |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>William Owen</u> (Signed) | I certify that the above information is correct: |
| Calibration Date: <u>02-24-99</u>                      | <u>[Signature]</u> 02-24-99                      |
| Next Calibration Due: <u>05-24-99</u>                  | Administrative Coordinator Date                  |

|                     |                     |                 |
|---------------------|---------------------|-----------------|
| INSTRUMENT: (E-520) | Serial Number: 5245 | Code Number: 17 |
|---------------------|---------------------|-----------------|

SOURCE INFORMATION

| CHECK IF USED | SOURCE NUMBERS | ACTIVITY (DPM) | SOURCE TYPE |
|---------------|----------------|----------------|-------------|
| ✓             | 761/84         | 162            | TC-99       |
| ✓             | 762/84         | 1310           | TC-99       |
| ✓             | 763/84         | 18700          | TC-99       |
| ✓             | 764/84         | 146000         | TC-99       |

BETA CALIBRATION

| SOURCE NUMBER | ACTIVITY DPM | INST. RANGE | TOLERANCE | READING GROSS CPM | BKG. CPM | READING NET CPM | EFFICIENCY |
|---------------|--------------|-------------|-----------|-------------------|----------|-----------------|------------|
| 761/84        | 162          | X.01        | ± 10%     | 60                | 40       | 20              | 12.3       |
| 762/84        | 1310         | X.1         | ± 10%     | 300               | 40       | 260             | 19.8       |
| 763/84        | 18700        | X1          | ± 10%     | 4800              | 40       | 4760            | 25.5       |
| 764/84        | 146000       | X10         | ± 10%     | 45000             | 40       | 44960           | 30.8       |

COMMENTS:

Avg EFF: 22.1 %  
C.F. : 4.52

|                                   |                               |               |
|-----------------------------------|-------------------------------|---------------|
| CALIBRATED BY: <i>Janey Smith</i> | SIGNATURE: <i>[Signature]</i> | DATE: 2-24-99 |
|-----------------------------------|-------------------------------|---------------|



GTS Instrument Services  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 724/733-1900 Fax: 724/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |                                     | INSTRUMENT INFORMATION  |                                    |
|----------------------|-------------------------------------|-------------------------|------------------------------------|
| Customer Name:       | Westinghouse                        | Instrument Manufacturer | Eberline                           |
| Customer Address:    | PO Box 3700<br>Pittsburgh, PA 15230 | Model                   | E-520                              |
|                      |                                     | Serial Number           | 5245                               |
|                      |                                     | External Probe(s)       | HP270                              |
| Customer P.O.#       | MB-14027-S                          | Serial #                |                                    |
| Work Order #         | I-98-09-208                         | Calibration Method      | <sup>137</sup> Cs s/n 10263 200mCi |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X.01             | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2  |                  | 80                         | 80                  | 80           |                                 |
| 3  |                  | 160                        | 160                 | 160          | Battery: OK                     |
| 4  |                  |                            |                     |              |                                 |
| 5  | X0.1             | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6  |                  | 1                          | 1                   | 1            |                                 |
| 7  |                  | 1.5                        | 1.45                | 1.45         | Response: OK                    |
| 8  |                  |                            |                     |              |                                 |
| 9  | X1               | 5                          | 5                   | 5            | Reset: OK                       |
| 10 |                  | 10                         | 10                  | 10           |                                 |
| 11 |                  | 15                         | 14.5                | 14.5         | Audio: OK                       |
| 12 |                  |                            |                     |              |                                 |
| 13 | X10              | 50                         | 55                  | 55           |                                 |
| 14 |                  | 100                        | 98                  | 98           |                                 |
| 15 |                  | 150                        | 135                 | 135          |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 | X100             | 500                        | 500                 | 500          |                                 |
| 18 |                  | 1,000                      | 1,000               | 1,000        |                                 |
| 19 |                  | 1,500                      | 1,425               | 1,425        |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|                           |                                   |  |          |
|---------------------------|-----------------------------------|--|----------|
| Instrument Calibrated by: | <i>William Decker</i><br>(Signed) | I certify that the above information is correct: |          |
| Calibration Date:         | 10-26-98                          | <i>William Decker</i>                            | 10-26-98 |
| Next Calibration Due:     | 01-26-99                          | Administrative Coordinator                       | Date     |

|                     |                     |                 |
|---------------------|---------------------|-----------------|
| INSTRUMENT: (E-520) | Serial Number: 5245 | Code Number: 17 |
|---------------------|---------------------|-----------------|

SOURCE INFORMATION

| CHECK IF USED | SOURCE NUMBERS | ACTIVITY (DPM) | SOURCE TYPE |
|---------------|----------------|----------------|-------------|
| ✓             | 761/84         | 162            | TC-99       |
| ✓             | 762/84         | 1310           | TC-99       |
| ✓             | 763/84         | 18700          | TC-99       |
| ✓             | 764/84         | 146000         | TC-99       |

BETA CALIBRATION

| SOURCE NUMBER | ACTIVITY DPM | INST. RANGE | TOLERANCE  | READING GROSS CPM | BKG. CPM | READING NET CPM | EFFICIENCY |
|---------------|--------------|-------------|------------|-------------------|----------|-----------------|------------|
| 761           | 162          | X.01        | $\pm 10\%$ | 60                | 30       | 30              | 18.5%      |
| 762           | 1310         | X.1         | $\pm 10\%$ | 300               | 30       | 270             | 20.6%      |
| 763           | 18700        | X 1         | $\pm 10\%$ | 4200              | 30       | 4170            | 22.3%      |
| 764           | 146000       | X 10        | $\pm 10\%$ | 40000             | 30       | 39970           | 27.4%      |

COMMENTS:  
 Avg. EFF = 22.2%  
 C.F. = 4.5

|                            |                        |               |
|----------------------------|------------------------|---------------|
| CALIBRATED BY: Larry Smith | SIGNATURE: Jerry Smith | DATE: 11-2-98 |
|----------------------------|------------------------|---------------|





GTS Instrument Services  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 724/733-1900 Fax: 724/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |                      | INSTRUMENT INFORMATION  |                                  |
|----------------------|----------------------|-------------------------|----------------------------------|
| Customer Name:       | Westinghouse         | Instrument Manufacturer | Eberline                         |
| Customer Address:    | PO Box 3700          | Model                   | E-520                            |
|                      | Pittsburgh, PA 15239 | Serial Number           | 5245                             |
|                      |                      | External Probe(s)       | HP270                            |
| Customer P.O.#       | MB-14027-S           | Serial #                |                                  |
| Work Order #         | I-98-05-209          | Calibration Method      | <sup>137</sup> Pulsar s/n 101500 |
|                      |                      |                         | Cs s/n 10263 200mCi              |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X.01             | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2  |                  | 80                         | 80                  | 80           |                                 |
| 3  |                  | 160                        | 160                 | 160          | Battery: OK                     |
| 4  |                  |                            |                     |              |                                 |
| 5  | X0.1             | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 6  |                  | 1                          | 1                   | 1            |                                 |
| 7  |                  | 1.5                        | 1.5                 | 1.5          | Response: OK                    |
| 8  |                  |                            |                     |              |                                 |
| 9  | X1               | 5                          | 5                   | 5            | Reset: OK                       |
| 10 |                  | 10                         | 10                  | 10           |                                 |
| 11 |                  | 15                         | 15                  | 15           | Speaker: OK                     |
| 12 |                  |                            |                     |              |                                 |
| 13 | X10              | 50                         | 55                  | 55           |                                 |
| 14 |                  | 100                        | 100                 | 100          |                                 |
| 15 |                  | 150                        | 137                 | 137          |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 | X100             | 500                        | 520                 | 520          |                                 |
| 18 |                  | 1,000                      | 1,080               | 1,080        |                                 |
| 19 |                  | 1,500                      | 1,470               | 1,470        |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|                           |          |  |          |
|---------------------------|----------|--|----------|
| Instrument Calibrated by: |          | I certify that the above information is correct: |          |
| Calibration Date:         | 06-10-98 |  | 06-10-98 |
| Next Calibration Due:     | 09-10-98 | Administrative Coordinator                       | Date     |

|                     |                     |                 |
|---------------------|---------------------|-----------------|
| INSTRUMENT: (E-520) | Serial Number: 5245 | Code Number: 17 |
|---------------------|---------------------|-----------------|

SOURCE INFORMATION

| CHECK IF USED | SOURCE NUMBERS | ACTIVITY (DPM) | SOURCE TYPE |
|---------------|----------------|----------------|-------------|
| ✓             | 761/84         | 162            | TC-99       |
| ✓             | 762/84         | 1310           | TC-99       |
| ✓             | 763/84         | 18700          | TC-99       |
| ✓             | 764/84         | 146000         | TC-99       |

BETA CALIBRATION

| SOURCE NUMBER | ACTIVITY DPM | INST. RANGE | TOLERANCE | READING GROSS CPM | BKG. CPM | READING NET CPM | EFFICIENCY |
|---------------|--------------|-------------|-----------|-------------------|----------|-----------------|------------|
| 761           | 162          | X.01        | ±10%      | 60                | 30       | 30              | 18.5       |
| 762           | 1310         | X.1         | ±10%      | 200               | 30       | 170             | 13         |
| 763           | 18700        | X1          | ±10%      | 4000              | 30       | 3970            | 21.2       |
| 764           | 146,000      | X10         | ±10%      | 40000             | 30       | 39970           | 27.4       |

COMMENTS:

AVG EFF: 20%

|                            |   |               |
|----------------------------|---|---------------|
| CALIBRATED BY: Larry Smith | SIGNATURE:  | DATE: 6-10-98 |
|----------------------------|---|---------------|



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 724/733-1900 Fax: 724/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

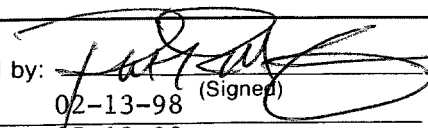
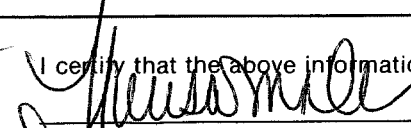
| CUSTOMER INFORMATION |                                     | INSTRUMENT INFORMATION  |  |
|----------------------|-------------------------------------|-------------------------|--|
| Customer Name:       | Westinghosue                        | Instrument Manufacturer | Eberline                                     |
| Customer Address:    | PO Box 3700<br>Pittsburgh, PA 15230 | Model                   | E-520  |
|                      |                                     | Serial Number           | 5245   |
|                      |                                     | External Probe(s)       | HP270  |
| Customer P.O.#       | MB-14027-S                          | Serial #                |  |
| Work Order #         | I-98-02-208                         | Calibration Method      | 137 Pulsar s/n 101500<br>Cs s/n 10263 200mCi |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X.01           | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2                | 80                         | 80                  | 80           |                                 |
| 3                | 160                        | 160                 | 160          | Battery: OK                     |
| 4 X0.1           | 0.5 mR/hr                  | 0.5 mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 5                | 1                          | 1                   | 1            |                                 |
| 6                | 1.5                        | 1.5                 | 1.5          | Response: OK                    |
| 7                |                            |                     |              |                                 |
| 8 X1             | 5                          | 5                   | 5            | Reset: OK                       |
| 9                | 10                         | 10                  | 10           |                                 |
| 10               | 15                         | 15                  | 15           | Speaker: OK                     |
| 11               |                            |                     |              |                                 |
| 12 X10           | 50                         | 50                  | 53           |                                 |
| 13               | 100                        | 92                  | 100          |                                 |
| 14               | 150                        | 128                 | 138          |                                 |
| 15               |                            |                     |              |                                 |
| 16 X100          | 500                        | 500                 | 500          |                                 |
| 17               | 1,000                      | 1,000               | 1,000        |                                 |
| 18               | 1,500                      | 1,500               | 1,500        |                                 |
| 19               |                            |                     |              |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|                           |   |  |  |
|---------------------------|---|--|--|
| Instrument Calibrated by: |  | I certify that the above information is correct: |  |
| Calibration Date:         | 02-13-98 (Signed)   | Administrative Coordinator                       | 02-13-98   |
| Next Calibration Due:     | 05-13-98  | Date   |  |

|                     |                     |                 |
|---------------------|---------------------|-----------------|
| INSTRUMENT: (E-520) | Serial Number: 5245 | Code Number: 17 |
|---------------------|---------------------|-----------------|

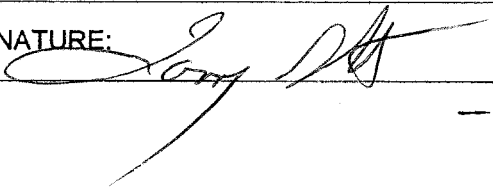
SOURCE INFORMATION

| CHECK IF USED | SOURCE NUMBERS | ACTIVITY (DPM) | SOURCE TYPE |
|---------------|----------------|----------------|-------------|
| ✓             | 761/84         | 162            | TC-99       |
| ✓             | 762/84         | 1310           | TC-99       |
| ✓             | 763/84         | 18700          | TC-99       |
| ✓             | 764/84         | 146000         | TC-99       |

BETA CALIBRATION

| SOURCE NUMBER | ACTIVITY DPM | INST. RANGE | TOLERANCE | READING GROSS CPM | BKG. CPM | READING NET CPM | EFFICIENCY |
|---------------|--------------|-------------|-----------|-------------------|----------|-----------------|------------|
| 761/84        | 162          | X.01        | ± 10%     | 60                | 30       | 30              | 18.5       |
| 762/84        | 1310         | X.1         | ± 10%     | 240               | 30       | 210             | 16         |
| 763/84        | 18700        | X.1         | ± 10%     | 4000              | 30       | 3970            | 21.2       |
| 764/84        | 146000       | X.10        | ± 10%     | 40000             | 30       | 39970           | 27.4       |

COMMENTS:  
20.8% AVG EFFICIENCY  
4.8 CORRECTION FACTOR

|                            |   |               |
|----------------------------|---|---------------|
| CALIBRATED BY: Larry Smith | SIGNATURE:  | DATE: 2-16-98 |
|----------------------------|---|---------------|



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

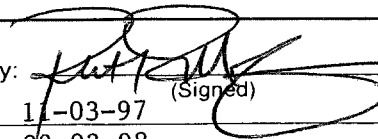
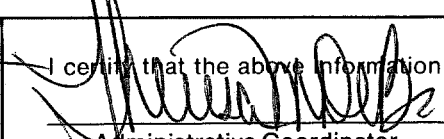
| CUSTOMER INFORMATION |                                     | INSTRUMENT INFORMATION  |                                  |
|----------------------|-------------------------------------|-------------------------|----------------------------------|
| Customer Name:       | Westinghouse                        | Instrument Manufacturer | Eberline                         |
| Customer Address:    | PO Box 3700<br>Pittsburgh, PA 15230 | Model                   | E-520                            |
|                      |                                     | Serial Number           | 5245                             |
|                      |                                     | External Probe(s)       | HP270                            |
| Customer P.O.#       | MB-14027-S                          | Calibration Method      | <sup>137</sup> Pulser s/n 101500 |
| Work Order #         | I-97-10-209                         |                         | Cs s/n 10263 200mCi              |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X.01             | 40 CPM                     | 40 CPM              | 40 CPM       | All Calibrations Btn. + & - 10% |
| 2  |                  | 80                         | 80                  | 80           |                                 |
| 3  |                  | 160                        | 160                 | 160          | Battery: OK                     |
| 4  | X0.1             | 0.5 mR/hr                  | 0.55mR/hr           | 0.5 mR/hr    | Mechanical Zero: OK             |
| 5  |                  | 1                          | 1.10                | 1            |                                 |
| 6  |                  | 1.5                        | 1.65                | 1.5          | Response: OK                    |
| 7  |                  |                            |                     |              |                                 |
| 8  | X1               | 5                          | 5.5                 | 5            | Reset: OK                       |
| 9  |                  | 10                         | 11                  | 10           |                                 |
| 10 |                  | 15                         | 16.5                | 15           | Speaker: OK                     |
| 11 |                  |                            |                     |              |                                 |
| 12 | X10              | 50                         | 60                  | 55           |                                 |
| 13 |                  | 100                        | 110                 | 100          |                                 |
| 14 |                  | 150                        | 150                 | 135          |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 | X100             | 500                        | 600                 | 500          |                                 |
| 17 |                  | 1,000                      | 1,200               | 1,000        |                                 |
| 18 |                  | 1,500                      | 1,700               | 1,400        |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|                           |   |  |  |
|---------------------------|---|--|--|
| Instrument Calibrated by: |  | I certify that the above information is correct: |  |
| Calibration Date:         | 11-03-97  | Administrative Coordinator                       | 11-03-97   |
| Next Calibration Due:     | 02-03-98  |  | Date   |

|                     |                     |                 |
|---------------------|---------------------|-----------------|
| INSTRUMENT: (E-520) | Serial Number: 5245 | Code Number: 17 |
|---------------------|---------------------|-----------------|

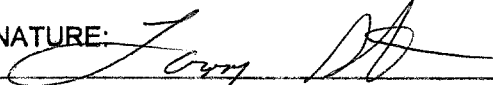
SOURCE INFORMATION

| CHECK IF USED | SOURCE NUMBERS | ACTIVITY (DPM) | SOURCE TYPE |
|---------------|----------------|----------------|-------------|
| ✓             | 761/84         | 162            | TC-99       |
| ✓             | 762/84         | 1310           | TC-99       |
| ✓             | 763/84         | 18700          | TC-99       |
| ✓             | 764/84         | 146000         | TC-99       |

BETA CALIBRATION

| SOURCE NUMBER | ACTIVITY DPM | INST. RANGE | TOLERANCE | READING GROSS CPM | BKG. CPM | READING NET CPM | EFFICIENCY |
|---------------|--------------|-------------|-----------|-------------------|----------|-----------------|------------|
| 761/84        | 162          | X.0 X       | + 10%     | 60                | 30       | 30              | 18.5       |
| 762/84        | 1310         | X.1         | + 10%     | 200               | 30       | 170             | 12.9       |
| 763/84        | 18700        | X 1         | + 10%     | 4200              | 30       | 4170            | 22.3       |
| 764/84        | 146000       | X 10        | + 10%     | 40000             | 30       | 39970           | 27.4       |

COMMENTS:  
20.3 % AVG. EFF.  
4.9 C.F.

|                            |   |               |
|----------------------------|---|---------------|
| CALIBRATED BY: Larry Smith | SIGNATURE:  | DATE: 11-3-97 |
|----------------------------|---|---------------|

**CODE NUMBER 19**

**REPORT #001**



GTS Instrument Services  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 724/733-1900 Fax: 724/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |  |
|----------------------|---|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>                               | Instrument Manufacturer | <u>Eberline</u>                              |
| Customer Address:    | <u>PO Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>E-140</u> Serial Number <u>1376</u>       |
| Customer P.O.#       | <u>MB-14027-S</u>                                 | External Probe(s)       | <u>HP270</u> Serial # _____                  |
| Work Order #         | <u>I-99-02-210</u>                                | Calibration Method      | <u>137</u> Cs s/n <u>10263</u> <u>200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X1               | 0.1 mR/hr                  | 0.1 mR/hr           | 0.1 mR/hr    | All Calibrations Btn. + & - 10% |
| 2  |                  | 0.2                        | 0.2                 | 0.2          |                                 |
| 3  |                  | 0.4                        | 0.38                | 0.38         | Battery: OK                     |
| 4  | X10              | 1                          | 1                   | 1            | Mechanical Zero: OK             |
| 5  |                  | 2                          | 2                   | 2            |                                 |
| 6  |                  | 4                          | 4.2                 | 4.2          | Reset: OK                       |
| 7  |                  |                            |                     |              |                                 |
| 8  | X100             | 10                         | 10                  | 10           | Response: OK                    |
| 9  |                  | 20                         | 20                  | 20           |                                 |
| 10 |                  | 40                         | 38                  | 38           | Speaker: OK                     |
| 11 |                  |                            |                     |              |                                 |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|                           |                                  |  |                 |
|---------------------------|----------------------------------|--|-----------------|
| Instrument Calibrated by: | <u>William Owens</u><br>(Signed) | I certify that the above information is correct: |                 |
| Calibration Date:         | <u>02-01-99</u>                  | <u>Heather M. De...</u>                          | <u>02-01-99</u> |
| Next Calibration Due:     | <u>05-01-99</u>                  | Administrative Coordinator                       | Date            |





GTS Instrument Services  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 724/733-1900 Fax: 724/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                 | INSTRUMENT INFORMATION                                      |
|--------------------------------------|---|
| Customer Name: <u>Westinghouse</u>   | Instrument Manufacturer <u>Eberline</u>                     |
| Customer Address: <u>PO Box 3700</u> | Model <u>E-140</u> Serial Number <u>1376</u>                |
| <u>Pittsburgh, PA 15239</u>          | External Probe(s) <u>HP270</u> Serial # _____               |
| Customer P.O.# <u>MB-14027-S</u>     | Calibration Method <u><sup>137</sup>Cs s/n 10263 200mCi</u> |
| Work Order # <u>I-98-09-210</u>      |   |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X1               | 0.1 mR/hr                  | 0.1 mR/hr           | 0.1 mR/hr    | All Calibrations Btn. + & - 10% |
| 2  |                  | 0.2                        | 0.2                 | 0.2          |                                 |
| 3  |                  | 0.4                        | 0.38                | 0.38         | Battery: OK                     |
| 4  |                  |                            |                     |              |                                 |
| 5  | X10              | 1                          | 1                   | 1            | Mechanical Zero: OK             |
| 6  |                  | 2                          | 2                   | 2            |                                 |
| 7  |                  | 4                          | 4.1                 | 4.1          | Reset: OK                       |
| 8  |                  |                            |                     |              |                                 |
| 9  | X100             | 10                         | 10                  | 10           | Response: OK                    |
| 10 |                  | 20                         | 20                  | 20           |                                 |
| 11 |                  | 40                         | 38                  | 38           | Audio: OK                       |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|   |  |
|---|--|
| Instrument Calibrated by: <u>William Owen</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>10-26-98</u>                         | <u>[Signature]</u> 10-26-98                      |
| Next Calibration Due: <u>01-26-99</u>                     | Administrative Coordinator Date                  |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
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# CALIBRATION CERTIFICATE

# 19

This Certificate will be accompanied by Calibration Charts or Readings where applicable


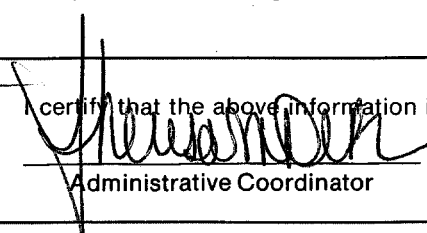
| CUSTOMER INFORMATION |                                     | INSTRUMENT INFORMATION  |                       |
|----------------------|-------------------------------------|-------------------------|-----------------------|
| Customer Name:       | Westinghouse                        | Instrument Manufacturer | Eberline              |
| Customer Address:    | PO Box 3700<br>Pittsburgh, PA 15230 | Model                   | E-140                 |
|                      |                                     | Serial Number           | 1376                  |
|                      |                                     | External Probe(s)       | HP270                 |
| Customer P.O.#       | MB-14027-S                          | Serial #                |                       |
| Work Order #         | I-98-05-210                         | Calibration Method      | 137 Cs s/n 10263 200m |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X1             | 0.1 mR/hr                  | 0.1 mR/hr           | 0.1 mR/hr    | All Calibrations Btn. + & - 10% |
| 2                | 0.2                        | 0.2                 | 0.2          |                                 |
| 3                | 0.4                        | 0.4                 | 0.4          | Battery: OK                     |
| 4                |                            |                     |              |                                 |
| 5 X10            | 1                          | 1                   | 1            | Mechanical Zero: OK             |
| 6                | 2                          | 2                   | 2            |                                 |
| 7                | 4                          | 4.1                 | 4.1          | Response: OK                    |
| 8                |                            |                     |              |                                 |
| 9 X100           | 10                         | 10.5                | 10.5         | Reset: OK                       |
| 10               | 20                         | 10.5                | 20.5         |                                 |
| 11               | 40                         | 39                  | 39           | Speaker: OK                     |
| 12               |                            |                     |              |                                 |
| 13               |                            |                     |              |                                 |
| 14               |                            |                     |              |                                 |
| 15               |                            |                     |              |                                 |
| 16               |                            |                     |              |                                 |
| 17               |                            |                     |              |                                 |
| 18               |                            |                     |              |                                 |
| 19               |                            |                     |              |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|   |   |
|---|---|
| Instrument Calibrated by:  | I certify that the above information is correct:  |
| Calibration Date: 05-29-98  | 05-29-98  |
| Next Calibration Due: 108-29-98   | Administrative Coordinator Date   |



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 2045 Route 286  
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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

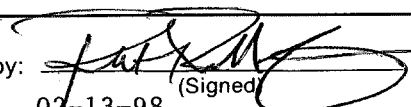
| CUSTOMER INFORMATION |                                     | INSTRUMENT INFORMATION   |                                    |
|----------------------|-------------------------------------|--------------------------|------------------------------------|
| Customer Name:       | Westinghouse                        | Instrument Manufacturer: | Eberline                           |
| Customer Address:    | PO Box 3700<br>Pittsburgh, PA 15230 | Model:                   | E-140                              |
|                      |                                     | External Probe(s):       | HP270                              |
| Customer P.O.#:      | MB-14027-S                          | Serial Number:           | 1376                               |
| Work Order #:        | I-98-02-208                         | Serial #:                |                                    |
|                      |                                     | Calibration Method:      | <sup>137</sup> Cs s/n 10263 200mCi |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X1             | 0.1 mR/hr                  | 0.1 mR/hr           | 0.1 mR/hr    | All Calibrations Btn. + & - 10% |
| 2                | 0.2                        | 0.2                 | 0.2          | Battery: OK                     |
| 3                | 0.4                        | 0.4                 | 0.4          |                                 |
| 4 X10            | 1                          | 1                   | 1            | Mechanical Zero: OK             |
| 5                | 2                          | 2                   | 2            |                                 |
| 6                | 4                          | 4                   | 4            | Response: OK                    |
| 7                |                            |                     |              |                                 |
| 8 X100           | 10                         | 10.5                | 10.5         | Reset: OK                       |
| 9                | 20                         | 21                  | 21           |                                 |
| 10               | 40                         | 37.5                | 37.5         | Audio: OK                       |
| 11               |                            |                     |              |                                 |
| 12               |                            |                     |              |                                 |
| 13               |                            |                     |              |                                 |
| 14               |                            |                     |              |                                 |
| 15               |                            |                     |              |                                 |
| 16               |                            |                     |              |                                 |
| 17               |                            |                     |              |                                 |
| 18               |                            |                     |              |                                 |
| 19               |                            |                     |              |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|                           |   |  |          |
|---------------------------|---|--|----------|
| Instrument Calibrated by: |  | I certify that the above information is correct: |          |
| Calibration Date:         | 02-13-98  | Administrative Coordinator                       | 02-13-98 |
| Next Calibration Due:     | 05-13-98  | Date   |          |



GTS Instrument Services  
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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |                             | INSTRUMENT INFORMATION  |                                |
|----------------------|-----------------------------|-------------------------|--------------------------------|
| Customer Name:       | <u>Westinghouse</u>         | Instrument Manufacturer | <u>Eberline</u>                |
| Customer Address:    | <u>PO Box 3700</u>          | Model                   | <u>E-140</u>                   |
|                      | <u>Pittsburgh, PA 15230</u> | Serial Number           | <u>1376</u>                    |
| Customer P.O.#       | <u>MB-14027-S</u>           | External Probe(s)       | <u>HP270</u> Serial # _____    |
| Work Order #         | <u>I-97-09-210</u>          | Calibration Method      | <u>137 Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X1               | 0.1 mR/hr                  | 0.2 mR/hr           | 0.1 mR/hr    | All Calibrations Btn. + & - 10% |
| 2  |                  | 0.2                        | 0.4                 | 0.2          |                                 |
| 3  |                  | 0.4                        | Off Scale           | 0.38         | Battery: OK                     |
| 4  | X10              | 1                          | 1.3                 | 1            | Mechanical Zero: OK             |
| 5  |                  | 2                          | 2.6                 | 2            |                                 |
| 6  |                  | 4                          | Off Scale           | 4.2          | Reset: OK                       |
| 8  | X100             | 10                         | 14                  | 11           | Response: OK                    |
| 9  |                  | 20                         | 26                  | 10           |                                 |
| 10 |                  | 40                         | 49                  | 38           | Audio: OK                       |
| 11 |                  |                            |                     |              |                                 |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>William Owens</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>09-25-97</u>                          | <u>[Signature]</u> 09-25-97                      |
| Next Calibration Due: <u>12-25-97</u>                      | Administrative Coordinator Date                  |



GTS Instrument Services  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |                                       | INSTRUMENT INFORMATION  |                         |
|----------------------|---------------------------------------|-------------------------|-------------------------|
| Customer Name:       | Westinghouse                          | Instrument Manufacturer | Eberline                |
| Customer Address:    | P.O. Box 3700<br>Pittsburgh, PA 15230 | Model                   | E-140                   |
|                      |                                       | Serial Number           | 1376                    |
|                      |                                       | External Probe(s)       | HP270                   |
| Customer P.O.#       | MB-14027-S                            | Serial #                |                         |
| Work Order #         | I-97-05-209                           | Calibration Method      | 137 Cs s/n 10263 200mCi |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X1               | 0.1 mR/hr                  | 0.09 mR/hr          | 0.1 mR/hr    | All Calibrations Btn. + & - 10% |
| 2  |                  | 0.2                        | 0.18                | 0.2          |                                 |
| 3  |                  | 0.4                        | 0.36                | 0.4          | Battery: OK                     |
| 4  | X10              | 1                          | 0.85                | 1            | Mechanical Zero: OK             |
| 5  |                  | 2                          | 1.7                 | 2            |                                 |
| 6  |                  | 4                          | 3.4                 | 4            | Response: OK                    |
| 7  |                  |                            |                     |              |                                 |
| 8  | X100             | 10                         | 10.5                | 10.5         | Reset: OK                       |
| 9  |                  | 20                         | 20.5                | 20.5         |                                 |
| 10 |                  | 40                         | 37.5                | 37.5         | Audio: OK                       |
| 11 |                  |                            |                     |              |                                 |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|                           |                   |  |          |
|---------------------------|-------------------|--|----------|
| Instrument Calibrated by: |                   | I certify that the above information is correct: |          |
| Calibration Date:         | 06-09-97 (Signed) |  | 06-09-97 |
| Next Calibration Due:     | 09-09-97          | Administrative Coordinator                       | Date     |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |                                       | INSTRUMENT INFORMATION  |                                    |
|----------------------|---------------------------------------|-------------------------|------------------------------------|
| Customer Name:       | Westinghouse                          | Instrument Manufacturer | Eberline                           |
| Customer Address:    | P.O. Box 3700<br>Pittsburgh, PA 15230 | Model                   | E-140                              |
|                      |                                       | Serial Number           | 1376                               |
|                      |                                       | External Probe(s)       | HP270                              |
| Customer P.O.#       | MB-14027-S                            | Serial #                |                                    |
| Work Order #         | I-97-02-209                           | Calibration Method      | <sup>137</sup> Cs s/n 10263 200mCi |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X1               | 0.1 mR/hr                  | 0.1 mR/hr           | 0.1 mR/hr    | All Calibrations Btn. + & - 10% |
| 2  |                  | 0.2                        | 0.2                 | 0.2          |                                 |
| 3  |                  | 0.4                        | 0.4                 | 0.4          | Battery: OK                     |
| 4  |                  |                            |                     |              |                                 |
| 5  | X10              | 1                          | 1.05                | 1            | Mechanical Zero: OK             |
| 6  |                  | 2                          | 2.1                 | 2            |                                 |
| 7  |                  | 4                          | 4.2                 | 4            | Response: OK                    |
| 8  |                  |                            |                     |              |                                 |
| 9  | X100             | 10                         | 10.5                | 10.5         | Reset: OK                       |
| 10 |                  | 20                         | 20                  | 20           |                                 |
| 11 |                  | 40                         | 38                  | 38           | Audio: OK                       |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|                           |                   |  |          |
|---------------------------|-------------------|--|----------|
| Instrument Calibrated by: |                   | I certify that the above information is correct: |          |
| Calibration Date:         | 02-21-97 (Signed) |  | 02-21-97 |
| Next Calibration Due:     | 05-21-97          | Administrative Coordinator                       | Date     |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

#19

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   | INSTRUMENT INFORMATION                          |
|--|---|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer <u>Eberline</u>         |
| Customer Address: <u>P.O. Box 3700</u> | Model <u>E-140</u> Serial Number <u>1376</u>    |
| <u>Pittsburgh, PA 15221</u>            | External Probe(s) <u>HP270</u> Serial # _____   |
| Customer P.O.# <u>MB-14027-S</u>       | Calibration Method <u>137Cs s/n 10263 200mC</u> |
| Work Order # <u>I-96-06-209</u>        |   |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X1               | 0.1 mR/hr                  | 0.1 mR/hr           | 0.1 mR/hr    | All Calibrations Btn. + & - 10% |
| 2  |                  | 0.2                        | 0.2                 | 0.2          |                                 |
| 3  |                  | 0.4                        | 0.38                | 0.38         | Battery: OK                     |
| 4  |                  |                            |                     |              |                                 |
| 5  | X10              | 1                          | 1                   | 1            | Mechanical Zero: OK             |
| 6  |                  | 2                          | 2                   | 2            |                                 |
| 7  |                  | 4                          | 4                   | 4            | Response: OK                    |
| 8  |                  |                            |                     |              |                                 |
| 9  | X100             | 10                         | 10                  | 10           | Reset: OK                       |
| 10 |                  | 20                         | 20                  | 20           |                                 |
| 11 |                  | 40                         | 38                  | 38           | Audio: OK                       |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u> | I certify that the above information is correct: |
| Calibration Date: <u>07-01-96</u> (Signed)   | <u>[Signature]</u>                               |
| Next Calibration Due: <u>10-01-96</u>        | <u>Administrative Coordinator</u>                |
|  | <u>07-01-96</u><br>Date                          |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   | INSTRUMENT INFORMATION                           |
|--|--|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer <u>Eberline</u>          |
| Customer Address: <u>P.O. Box 3700</u> | Model <u>E-140</u> Serial Number <u>1376</u>     |
| <u>Pittsburgh, PA 15230</u>            | External Probe(s) <u>HP270</u> Serial # _____    |
| Customer P.O.# <u>MB-14027-S</u>       | Calibration Method <u>137Cs s/n 10263 200mCi</u> |
| Work Order # <u>I-96-03-210</u>        |  |

### INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 X1             | 0.1 mR/hr                  | 0.1 mR/hr           | 0.1 mR/hr    | All Calibrations Btn. + & - 10% |
| 2                | 0.2                        | 0.2                 | 0.2          |                                 |
| 3                | 0.4                        | 0.4                 | 0.4          | Battery: OK                     |
| 4                |                            |                     |              |                                 |
| 5 X10            | 1                          | 1                   | 1            | Mechanical Zero: OK             |
| 6                | 2                          | 2                   | 2            |                                 |
| 7                | 4                          | 3.9                 | 3.9          | Response: OK                    |
| 8                |                            |                     |              |                                 |
| 9 X100           | 10                         | 10                  | 10           | Reset: OK                       |
| 10               | 20                         | 20                  | 20           |                                 |
| 11               | 40                         | 37                  | 37           | Speaker: OK                     |
| 12               |                            |                     |              |                                 |
| 13               |                            |                     |              |                                 |
| 14               |                            |                     |              |                                 |
| 15               |                            |                     |              |                                 |
| 16               |                            |                     |              |                                 |
| 17               |                            |                     |              |                                 |
| 18               |                            |                     |              |                                 |
| 19               |                            |                     |              |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct:<br><u>[Signature]</u> |
| Calibration Date: <u>03-08-96</u>                        | <u>03-08-96</u><br>Date  |
| Next Calibration Due: <u>06-08-96</u>                    | Administrative Coordinator   |





**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

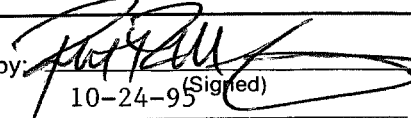
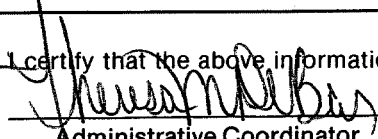
| CUSTOMER INFORMATION |                                       | INSTRUMENT INFORMATION  |                       |
|----------------------|---------------------------------------|-------------------------|-----------------------|
| Customer Name:       | Westinghouse                          | Instrument Manufacturer | Eberline              |
| Customer Address:    | P.O. Box 3700<br>Pittsburgh, PA 15230 | Model                   | E-140                 |
|                      |                                       | Serial Number           | 1376                  |
|                      |                                       | External Probe(s)       | HP270                 |
|                      |                                       | Serial #                |                       |
| Customer P.O.#       | MB-14027-S                            | Calibration Method      | 137 Cs s/n 10263 200m |
| Work Order #         | I-95-10-209                           |                         |                       |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X1               | 0.1 mR/hr                  | Initial             | 0.1 mR/hr    | All Calibrations Btn. + & - 10% |
| 2  |                  | 0.2                        | Calibration         | 0.2          |                                 |
| 3  |                  | 0.4                        |                     | 0.4          | Battery: OK                     |
| 4  |                  |                            |                     |              |                                 |
| 5  | X10              | 1                          |                     | 1            | Mechanical Zero: OK             |
| 6  |                  | 2                          |                     | 2            |                                 |
| 7  |                  | 4                          |                     | 4            | Response: OK                    |
| 8  |                  |                            |                     |              |                                 |
| 9  | X100             | 10                         |                     | 10           | Reset: OK                       |
| 10 |                  | 20                         |                     | 20           |                                 |
| 11 |                  | 40                         |                     | 38           | Speaker: OK                     |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|   |   |
|---|---|
| Instrument Calibrated by:  | I certify that the above information is correct:  |
| Calibration Date: 10-24-95 (Signed)   | 10-24-95  |
| Next Calibration Due: 01-24-96  | Date  |
|   | Administrative Coordinator  |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |   |
|----------------------|---|-------------------------|---|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>                             |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>E-140</u> Serial Number <u>1376</u>      |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | <u>HP270</u> Serial # _____                 |
| Work Order #         | <u>I-95-06-208</u>                                  | Calibration Method      | <u>137Cs</u> s/n <u>10263</u> <u>200mC:</u> |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X1               | 0.1 mR/hr                  | 0.09 mR/hr          | 0.1 mR/hr    | All Calibrations Btn. + & - 10% |
| 2  |                  | 0.2                        | 0.18                | 0.2          |                                 |
| 3  |                  | 0.4                        | 0.36                | 0.4          | Battery Check: OK               |
| 4  | X10              | 1                          | 1                   | 1            | Response: OK                    |
| 5  |                  | 2                          | 2.1                 | 2.1          |                                 |
| 6  |                  | 4                          | 4.1                 | 4.1          | Reset: OK                       |
| 7  | X100             | 10                         | 11                  | 10           | Audio: OK                       |
| 8  |                  | 20                         | 22                  | 20           |                                 |
| 9  |                  | 40                         | 41                  | 38           | Mechanical zero: OK             |
| 10 |                  |                            |                     |              |                                 |
| 11 |                  |                            |                     |              |                                 |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>06-05-95</u>                        | <u>[Signature]</u> <u>06-05-95</u>               |
| Next Calibration Due: <u>09-95-95</u>                    | Administrative Coordinator Date                  |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |                             | INSTRUMENT INFORMATION  |  |
|----------------------|-----------------------------|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>         | Instrument Manufacturer | <u>Eberline</u>  |
| Customer Address:    | <u>P.O. Box 3700</u>        | Model                   | <u>E-140</u> Serial Number <u>1376</u>                 |
|                      | <u>Pittsburgh, PA 15230</u> | External Probe(s)       | <u>HP270</u> Serial # _____                            |
| Customer P.O.#       | <u>MB-14027-S</u>           | Calibration Method      | <u><sup>137</sup>Cs</u> s/n <u>10263</u> <u>200mCi</u> |
| Work Order #         | <u>I-94-12-225</u>          |                         |  |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X1               | 0.1 mR/hr                  | 0.1 mR/hr           | 0.1 mR/hr    | All Calibrations Btn. + & - 10% |
| 2  |                  | 0.2                        | 0.2                 | 0.2          |                                 |
| 3  |                  | 0.4                        | 0.4                 | 0.4          | Battery Check: OK               |
| 4  |                  |                            |                     |              |                                 |
| 5  | X10              | 1                          | 1                   | 1            | Mechanical Zero: OK             |
| 6  |                  | 2                          | 2                   | 2            |                                 |
| 7  |                  | 4                          | 4                   | 4            | Audio: OK                       |
| 8  |                  |                            |                     |              |                                 |
| 9  | X100             | 10                         | 10                  | 10           |                                 |
| 10 |                  | 20                         | 20                  | 20           |                                 |
| 11 |                  | 40                         | 37                  | 37           |                                 |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>William Owens</u> | I certify that the above information is correct: |
| Calibration Date: <u>01-09-95</u> (Signed)     | <u>William Owens</u> <u>01-09-95</u>             |
| Next Calibration Due: <u>04-09-95</u>          | Administrative Coordinator Date                  |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |  | INSTRUMENT INFORMATION  |  |
|----------------------|--|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>  | Instrument Manufacturer | <u>Eberline</u>                        |
| Customer Address:    | <u>Avenue A &amp; West Street<br/>Pittsburgh, PA 15221</u> | Model                   | <u>E-140</u> Serial Number <u>1376</u> |
| Customer P.O.#       | <u>MB-14027-S</u>  | External Probe(s)       | <u>HP270</u> Serial # _____            |
| Work Order #         | <u>I-94-08-218</u>   | Calibration Method      | <u>137</u> Cs s/n 10263 200m           |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X1               | 0.1 mR/hr                  | 0.1 mR/hr           | 0.1 mR/hr    | All Calibrations Btn. + & - 10% |
| 2  |                  | 0.2                        | 0.2                 | 0.2          |                                 |
| 3  |                  | 0.4                        | 0.38                | 0.4          | Battery Check: OK               |
| 4  |                  |                            |                     |              |                                 |
| 5  | X10              | 1                          | 1                   | 1            | Mechanical Zero: OK             |
| 6  |                  | 2                          | 2.1                 | 2.1          |                                 |
| 7  |                  | 4                          | 4                   | 4            | Response: OK                    |
| 8  |                  |                            |                     |              |                                 |
| 9  | X100             | 10                         | 10                  | 10           | Reset: OK                       |
| 10 |                  | 20                         | 21                  | 21           |                                 |
| 11 |                  | 40                         | 40                  | 40           |                                 |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|                           |                               |  |
|---------------------------|-------------------------------|--|
| Instrument Calibrated by: | <u>James Christy</u> (Signed) | I certify that the above information is correct: |
| Calibration Date:         | <u>08-11-94</u>               | <u>08-11-94</u>                                  |
| Next Calibration Due:     | <u>11-11-94</u>               | Administrative Coordinator _____ Date            |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                                | INSTRUMENT INFORMATION                                    |
|---|---|
| Customer Name: <u>Westinghouse</u>                  | Instrument Manufacturer <u>Eberline</u>                   |
| Customer Address: <u>Avenue A &amp; West Street</u> | Model <u>E-140</u> Serial Number <u>1376</u>              |
| <u>Pittsburgh, PA 15221</u>                         | External Probe(s) <u>HP270</u> Serial # _____             |
| Customer P.O.# <u>MB-14027-S</u>                    | Calibration Method _____ <sup>137</sup> Cs s/n 10263 200m |
| Work Order # <u>I-94-05-222</u>                     |   |

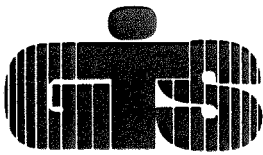
## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X1               | 0.1 mR/hr                  | 0.1 mR/hr           | 0.1 mR/hr    | All Calibrations Btn. + & - 10% |
| 2  |                  | 0.2                        | 0.2                 | 0.2          |                                 |
| 3  |                  | 0.4                        | 0.38                | 0.38         | Battery Check: OK               |
| 4  | X10              | 1                          | 1                   | 1            | Mechanical Zero: OK             |
| 5  |                  | 2                          | 2.1                 | 2.1          |                                 |
| 6  |                  | 4                          | 3.8                 | 3.8          | Reset: OK                       |
| 7  |                  |                            |                     |              |                                 |
| 8  | X100             | 10                         | 11                  | 11           | Response: OK                    |
| 9  |                  | 20                         | 21                  | 21           |                                 |
| 10 |                  | 40                         | 39                  | 39           |                                 |
| 11 |                  |                            |                     |              |                                 |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>James Christopher</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>05-11-94</u>                              | <u>Theresa M. DeB...</u> 05-11-94                |
| Next Calibration Due: <u>08-11-94</u>                          | Administrative Coordinator Date                  |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION   |   | INSTRUMENT INFORMATION |                            |
|--|---|------------------------|----------------------------|
| Customer Name: <u>Westinghouse Electric Corp.</u>                                  | Instrument Manufacturer: <u>Eberline</u>    | Model: <u>E-140</u>    | Serial Number: <u>1376</u> |
| Customer Address: <u>Avenue A &amp; West Street</u><br><u>Pittsburgh, PA 15221</u> | External Probe(s): <u>HP270</u>             | Serial #               |                            |
| Customer P.O.#: <u>MB-14016-H</u>  | Calibration Method: <u>137 Cs s/n 10263</u> |                        | <u>200m</u>                |
| Work Order #: <u>I-94-01-224</u>   |   |                        |                            |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | X1               | 0.1 mR/hr                  | 0.08 mR/hr          | 0.1 mR/hr    | All Calibrations Btn. + & - 10% |
| 2  |                  | 0.2                        | 0.16                | 0.2          |                                 |
| 3  |                  | 0.4                        | 0.32                | 0.4          | Battery Check: OK               |
| 4  |                  |                            |                     |              |                                 |
| 5  | X10              | 1                          | 0.9                 | 1            | Mechanical Zero: OK             |
| 6  |                  | 2                          | 1.8                 | 2            |                                 |
| 7  |                  | 4                          | 3.6                 | 4            | Response: OK                    |
| 8  |                  |                            |                     |              |                                 |
| 9  | X100             | 10                         | 10.5                | 10.5         | Reset: OK                       |
| 10 |                  | 20                         | 21                  | 21           |                                 |
| 11 |                  | 40                         | 39.5                | 39.5         | Audio: OK                       |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct:<br><u>[Signature]</u><br>Administrative Coordinator |
| Calibration Date: <u>01-31-94</u>                        | <u>01-31-94</u><br>Date  |
| Next Calibration Due: <u>04-30-94</u>                    |  |



2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|  |                                |
|--|--------------------------------|
| SHIPPING ADDRESS   | BILLING ADDRESS (If Different) |
| <u>WEC</u><br><u>Ave "A" - WEST ST</u><br><u>PITTSBURGH PA 15112</u> | <u>SFC</u>                     |

CONTACT: L. SMITH PHONE: (-) 412-371 DATE: 10/25/93 P.O.# MA89328-S

Receiving Comments:

Instrument Received:  Within Toler.  $\pm 10\%$    $\pm 10-20\%$   Out Toler.  Requires Repair

Mfg. Inst. EBERLINE Model # E-140 Serial # 1376  
 Detector " " Model # HP-270 Serial # 5255

CALIBRATION  REPAIR  SALE  LOAN By: [Signature]

| scale     | source    | reading    | scale      | source   | reading     | scale      | source      | reading     |
|-----------|-----------|------------|------------|----------|-------------|------------|-------------|-------------|
|           | mR/hr     |            |            | mR/hr    |             |            | mR/hr       |             |
| <u>11</u> | <u>.1</u> | <u>.1</u>  | <u>110</u> | <u>1</u> | <u>1.02</u> | <u>110</u> | <u>11.2</u> | <u>11.5</u> |
| <u>11</u> | <u>.4</u> | <u>.42</u> | <u>110</u> | <u>4</u> | <u>4.0</u>  | <u>110</u> | <u>40</u>   | <u>39</u>   |

Calibration Source:  GAMMA  ALPHA  BETA  ELECTRONIC  OTHER

Description:  ra-226  cs-137  pu-239  sr-90  mp-1

|                                     |  |
|-------------------------------------|--|
| RESPONSE GRAPH <u>NIA</u><br>       | PROBE EFFICIENCIES<br>Alpha _____ % Beta _____ %<br>Check Source Reading <u>NIA</u><br>Battery Check Reading <u>.13 mR/hr</u><br>Detector Angle <u>PERPENDICULAR</u><br>Corrections <u>NIA <math>\pm 10\%</math></u> |
| TEMP/HUMIDITY <u>70.2 °F / 45 %</u> |  |

Maintenance & Comments BATT OK HV OK

|                     |   |
|---------------------|---|
| CALIBRATION _____   | QA Dept. <u>[Signature]</u> Warranty _____  |
| LABOR _____         | Shipping <u>UPS</u> Date <u>10/25/93</u>    |
| MATERIALS _____     | Pick-Up _____ Date <u>1/1</u>               |
| & _____             | This Certificate Expires In <u>3</u> Months |
| SALES _____         | Re-Calibrate On Or Before <u>1/25/98</u>    |
| SHIPPING <u>UPS</u> | Job ID # _____                              |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.



HEALTH PHYSICS inc.

2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|                                 |                                |
|---------------------------------|--------------------------------|
| SHIPPING ADDRESS                | BILLING ADDRESS (If Different) |
| <u>WFC</u>                      | <u>SAME</u>                    |
| <u>Ave. 7th &amp; W. Street</u> |                                |
| <u>Pgh., PA 15112</u>           |                                |

CONTACT: J. Flanigan PHONE: (---) --- DATE: 7/14/93 P.O.# MA873285

Receiving Comments: Calibration.

Instrument Received:  Within Toler.  $\pm 10\%$    $\pm 10-20\%$   Out Toler.  Requires Repair

Mfg. Inst. Edgelinc Model # E-140 Serial # 1376  
 Detector 11 Model # HP-270 Serial # 506M

CALIBRATION  REPAIR  SALE  LOAN By: J. Douglas

| scale     | source    | reading    | scale      | source   | reading     | scale       | source      | reading     |
|-----------|-----------|------------|------------|----------|-------------|-------------|-------------|-------------|
|           | mR/hr     |            |            | mR/hr    |             |             | mR/hr       |             |
| <u>X1</u> | <u>.1</u> | <u>.1</u>  | <u>X10</u> | <u>1</u> | <u>1.04</u> | <u>X100</u> | <u>11.2</u> | <u>11.9</u> |
|           | <u>.4</u> | <u>.41</u> |            | <u>4</u> | <u>4.1</u>  |             | <u>40</u>   | <u>38</u>   |

Calibration Source:  GAMMA  ALPHA  BETA  ELECTRONIC  OTHER

Description:  ra-226  cs-137  pu-239  sr-90  mp-1

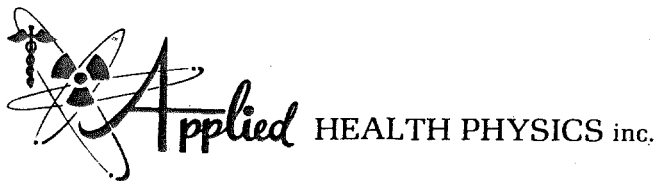
|                                   |  |
|-----------------------------------|--|
| RESPONSE GRAPH <u>N/A</u>         | PROBE EFFICIENCIES <u>N/A</u>                |
|                                   | Alpha _____ % Beta _____ %                   |
|                                   | Check Source Reading <u>N/A</u>              |
|                                   | Battery Check Reading <u>.44 mR/hr</u>       |
|                                   | Detector Angle <u>Perpendicular</u>          |
|                                   | Corrections <u>N/A <math>\pm 10\%</math></u> |
| TEMP/HUMIDITY <u>69.1°F / 44%</u> |  |

Maintenance & Comments Batteries OK, HV-OK.

|                             |              |   |                     |
|-----------------------------|--------------|---|---------------------|
|                             |              | <u>Tested, Inspected &amp; Calibrated</u>   |                     |
| CALIBRATION <u>Contract</u> | <u>40.00</u> | QA Dept. <u>JDS</u>                         | Warranty _____      |
| LABOR _____                 |              | Shipping <u>UPS</u>                         | Date <u>7/14/93</u> |
| MATERIALS _____             |              | Pick-Up _____                               | Date <u>7/14/93</u> |
| & _____                     |              | This Certificate Expires In <u>3 Months</u> |                     |
| SALES _____                 |              | Re-Calibrate On Or Before <u>10/14/93</u>   |                     |
| SHIPPING <u>UPS</u>         |              | Job ID # <u>52369</u>                       |                     |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.





2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|   |                                |
|---|--------------------------------|
| SHIPPING ADDRESS                          | BILLING ADDRESS (If Different) |
| WEC<br>Ave. A & West St.<br>Pgh, PA 15112 | SAME                           |

CONTACT: J. Flanigan PHONE: ( ) — DATE: 4/13/93 P.O.# MA 292855

Receiving Comments: Calibration.

Instrument Received:  Within Toler.  $\pm 10\%$    $\pm 10-20\%$   Out Toler.  Requires Repair

Mfg. Inst. Eberline Model # E-140 Serial # 1376  
 Detector " Model # HP-270 Serial # 206M

CALIBRATION  REPAIR  SALE  LOAN By: J. Douglas

| scale     | source | reading | scale      | source | reading | scale       | source | reading |
|-----------|--------|---------|------------|--------|---------|-------------|--------|---------|
|           | mR/hr  |         |            | mR/hr  |         |             | mR/hr  |         |
| <u>X1</u> | .1     | .1      | <u>X10</u> | 1      | 1       | <u>X100</u> | 11.2   | 113     |
|           | .4     | .39     |            | 4      | 3.8     |             | 40     | 37      |

Calibration Source:  GAMMA  ALPHA  BETA  ELECTRONIC  OTHER

Description:  ra-226  cs-137  pu-239  sr-90  mp-1

|                                   |  |
|-----------------------------------|--|
| RESPONSE GRAPH <u>N/A</u>         | PROBE EFFICIENCIES <u>N/A</u>                |
|                                   | Alpha _____ % Beta _____ %                   |
|                                   | Check Source Reading <u>N/A</u>              |
|                                   | Battery Check Reading <u>.45 mR/hr</u>       |
|                                   | Detector Angle <u>Perpendicular</u>          |
|                                   | Corrections <u>N/A <math>\pm 10\%</math></u> |
| TEMP/HUMIDITY <u>73.8°F / 35%</u> |  |

Maintenance & Comments All Batteries OK, HV-OK.

|                            |       |   |                     |
|----------------------------|-------|---|---------------------|
| CALIBRATION <u>Account</u> | 40.00 | QA Dept. <u>JW</u>                          | Warranty _____      |
| LABOR                      |       | Shipping <u>UPS</u>                         | Date <u>4/13/93</u> |
| MATERIALS                  |       | Pick-Up _____                               | Date <u>7/7</u>     |
| &                          |       | This Certificate Expires In <u>3 Months</u> |                     |
| SALES                      |       | Re-Calibrate On Or Before <u>7/13/93</u>    |                     |
| SHIPPING <u>UPS</u>        |       | Job ID # <u>52125</u>                       |                     |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.



HEALTH PHYSICS inc.

2986 Industrial Blvd. - Bethel Park, Pa. 15102 - Phone 412 - 835-9555 - Fax No. 412 - 835-9559

### CERTIFICATE OF CALIBRATION

|   |             |             |                          |          |   |                          |                      |                            |                        |  |
|---|-------------|-------------|--------------------------|----------|---|--------------------------|----------------------|----------------------------|------------------------|--|
| SHIPPING ADDRESS  |             |             |                          |          | BILLING ADDRESS (If Different)              |                          |                      |                            |                        |  |
| <u>W. E. C.</u>   |             |             |                          |          | <u>SAME</u>                                 |                          |                      |                            |                        |  |
| <u>Forest Hills Site</u>  |             |             |                          |          |   |                          |                      |                            |                        |  |
| <u>Ave. A &amp; West St.</u>  |             |             |                          |          |   |                          |                      |                            |                        |  |
| <u>Pgh, PA 15112</u>  |             |             |                          |          |   |                          |                      |                            |                        |  |
| CONTACT: <u>J. Flanagan</u>   |             |             |                          |          | PHONE: <u>(- ) 374-4651</u>                 |                          | DATE: <u>1/12/93</u> |                            | P.O.# <u>MA8939555</u> |  |
| Receiving Comments: <u>Calibration</u>  |             |             |                          |          |   |                          |                      |                            |                        |  |
| Instrument Received: <input checked="" type="checkbox"/> Within Toler. ±10% <input type="checkbox"/> ±10-20% <input type="checkbox"/> Out Toler. <input type="checkbox"/> Requires Repair     |             |             |                          |          |   |                          |                      |                            |                        |  |
| Mfg. Inst. <u>Eberline</u>  |             |             | Model # <u>E-140</u>     |          | Serial # <u>1376</u>                        |                          |                      |                            |                        |  |
| Detector <u>II</u>  |             |             | Model # <u>HP-270</u>    |          | Serial # <u>52571</u>                       |                          |                      |                            |                        |  |
| <input checked="" type="checkbox"/>   | CALIBRATION |             | <input type="checkbox"/> | REPAIR   |   | <input type="checkbox"/> | SALE                 | LOAN By: <u>J. Douglas</u> |                        |  |
| scale   | source      | reading     | scale                    | source   | reading                                     | scale                    | source               | reading                    |                        |  |
|   | mR/hr       |             |                          | mR/hr    |   |                          | mR/hr                |                            |                        |  |
| <u>XI</u>   | <u>.1</u>   | <u>.105</u> |                          | <u>1</u> | <u>1.05</u>                                 |                          | <u>11.2</u>          | <u>11.9</u>                |                        |  |
|   | <u>.4</u>   | <u>.41</u>  | <u>X100</u>              | <u>4</u> | <u>4.2</u>                                  | <u>X100</u>              | <u>40</u>            | <u>41</u>                  |                        |  |
| Calibration Source: <input checked="" type="checkbox"/> GAMMA <input type="checkbox"/> ALPHA <input type="checkbox"/> BETA <input type="checkbox"/> ELECTRONIC <input type="checkbox"/> OTHER |             |             |                          |          |   |                          |                      |                            |                        |  |
| Description: <input checked="" type="checkbox"/> ra-226 <input type="checkbox"/> cs-137 <input type="checkbox"/> pu-239 <input type="checkbox"/> sr-90 <input type="checkbox"/> mp-1          |             |             |                          |          |   |                          |                      |                            |                        |  |
| RESPONSE GRAPH <u>N/A</u>   |             |             |                          |          | PROBE EFFICIENCIES <u>N/A</u>               |                          |                      |                            |                        |  |
|   |             |             |                          |          | Alpha _____ % Beta _____ %                  |                          |                      |                            |                        |  |
|   |             |             |                          |          | Check Source Reading <u>N/A</u>             |                          |                      |                            |                        |  |
|   |             |             |                          |          | Battery Check Reading <u>.45 mR/hr</u>      |                          |                      |                            |                        |  |
|   |             |             |                          |          | Detector Angle <u>perpendicular</u>         |                          |                      |                            |                        |  |
| TEMP/HUMIDITY <u>70.6°F / 33%</u>   |             |             |                          |          | Corrections <u>N/A ± 10%</u>                |                          |                      |                            |                        |  |
| Maintenance & Comments <u>Batteries OK, HV-OK</u>   |             |             |                          |          |   |                          |                      |                            |                        |  |
| <u>Tested, Inspected &amp; Calibrated</u>   |             |             |                          |          |   |                          |                      |                            |                        |  |
| CALIBRATION <u>Contract</u>   |             |             | <u>40.00</u>             |          | QA Dept. <u>JW</u>                          |                          | Warranty _____       |                            |                        |  |
| LABOR _____   |             |             | _____                    |          | Shipping <u>UPS</u>                         |                          | Date <u>1/12/93</u>  |                            |                        |  |
| MATERIALS _____   |             |             | _____                    |          | Pick-Up _____                               |                          | Date <u>1/1</u>      |                            |                        |  |
| & _____   |             |             | _____                    |          | This Certificate Expires In <u>6 Months</u> |                          |                      |                            |                        |  |
| SALES _____   |             |             | _____                    |          | Re-Calibrate On Or Before <u>7/12/93</u>    |                          |                      |                            |                        |  |
| SHIPPING <u>UPS</u>   |             |             | _____                    |          | Job ID # <u>51963</u>                       |                          |                      |                            |                        |  |

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HEALTH PHYSICS inc.

2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|   |        |                      |   |                      |  |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
|---|--------|----------------------|---|----------------------|--|-------------------------------|--------|-----------------------|----------------------------|----------------------|---------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----------------------------|--|--|--|--|
| SHIPPING ADDRESS  |        |                      |   |                      | BILLING ADDRESS (If Different)               |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| Westinghouse Corp.<br>Forest Hills Site<br>Ave. A & West St.<br>Pgh., PA 15112  |        |                      |   |                      | SAME   |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| CONTACT: <u>Jim Flanigan</u> PHONE: ( ) — DATE: <u>9/28/92</u> P.O.# <u>51-03026-H</u>  |        |                      |   |                      |  |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| Receiving Comments: <u>Calibration.</u>   |        |                      |   |                      |  |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| Instrument Received: <input checked="" type="checkbox"/> Within Toler. $\pm 10\%$ <input type="checkbox"/> $\pm 10-20\%$ <input type="checkbox"/> Out Toler. <input type="checkbox"/> Requires Repair   |        |                      |   |                      |  |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| Mfg. Inst. <u>Eberline</u>  |        | Model # <u>E-110</u> |   | Serial # <u>1376</u> |  | Detector <u>"</u>             |        | Model # <u>HP-270</u> |                            | Serial # <u>306M</u> |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| <input checked="" type="checkbox"/> CALIBRATION   |        |                      | <input type="checkbox"/> REPAIR             |                      |  | <input type="checkbox"/> SALE |        |                       | LOAN By: <u>J. Douglas</u> |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| scale   | source | reading              | scale                                       | source               | reading                                      | scale                         | source | reading               | scale                      | source               | reading |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
|   | mR/hr  |                      |   | mR/hr                |  |                               | mR/hr  |                       |                            | mR/hr                |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
|   | .1     | .1                   |   | 1                    | 1  |                               | 11.2   | 11.9                  |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| <u>XI</u>   | .4     | .41                  | <u>XII</u>                                  | 4                    | 4.1  | <u>XIII</u>                   | 40     | 38                    |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| Calibration Source: <input checked="" type="checkbox"/> GAMMA <input type="checkbox"/> ALPHA <input type="checkbox"/> BETA <input type="checkbox"/> ELECTRONIC <input type="checkbox"/> OTHER   |        |                      |   |                      |  |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| Description: <input checked="" type="checkbox"/> ra-226 <input type="checkbox"/> cs-137 <input type="checkbox"/> pu-239 <input type="checkbox"/> sr-90 <input type="checkbox"/> mp-1  |        |                      |   |                      |  |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| RESPONSE GRAPH <u>N/A</u>   |        |                      |   |                      | PROBE EFFICIENCIES <u>N/A</u>                |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| <table border="1" style="width:100%; height: 20px;"> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table> |        |                      |   |                      |  |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Alpha _____ % Beta _____ % |  |  |  |  |
|   |        |                      |   |                      |  |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
|   |        |                      |   |                      |  |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
|   |        |                      |   |                      |  |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
|   |        |                      |   |                      |  |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
|   |        |                      |   |                      | Check Source Reading <u>N/A</u>              |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
|   |        |                      |   |                      | Battery Check Reading <u>.12 mR/hr</u>       |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
|   |        |                      |   |                      | Detector Angle <u>Perpendicular</u>          |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| TEMP/HUMIDITY <u>73.5°F / 49%</u>   |        |                      |   |                      | Corrections <u>N/A <math>\pm 10\%</math></u> |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| Maintenance & Comments <u>Batteries OK, HV-OK.</u>  |        |                      |   |                      |  |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| <u>Tested, Inspected &amp; Calibrated</u>   |        |                      |   |                      |  |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| CALIBRATION <u>Contract</u>   |        |                      | QA Dept. <u>JW</u>                          |                      |  | Warranty _____                |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| LABOR _____   |        |                      | Shipping <u>UPS</u>                         |                      |  | Date <u>9/28/92</u>           |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| MATERIALS _____   |        |                      | Pick-Up _____                               |                      |  | Date <u>7-7</u>               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| & _____   |        |                      | This Certificate Expires In <u>6</u> Months |                      |  |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| SALES _____   |        |                      | Re-Calibrate On Or Before <u>3/28/93</u>    |                      |  |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| SHIPPING <u>UPS</u>   |        |                      | Job ID # <u>51758</u>                       |                      |  |                               |        |                       |                            |                      |         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |

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**CODE NUMBER 20 & 21**

**REPORT #001**

**IH & S Form # 204**  
**Forest Hills Site**

**FLOOR MONITOR**  
**CALIBRATION**

|                                |                              |                                |                         |                             |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|
| LUDLUM MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 /21 |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|

| PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE) |       |      |      |       |                            |      |       |      |  |
|---|-------|------|------|-------|----------------------------|------|-------|------|--|
| HV  | ALPHA | BETA | HV   | ALPHA | BETA                       | HV   | ALPHA | BETA |  |
| 900   | -     | -    | 1250 | 3775  | 6                          | 1600 | -     | 486  |  |
| 950   | -     | -    | 1300 | 4447  | 6                          | 1650 | -     | 1491 |  |
| 1000  | -     | -    | 1350 | 4825  | 3                          | 1700 | -     | 2605 |  |
| 1050  | -     | -    | 1400 | 4668  | 8                          | 1750 | -     | 3785 |  |
| 1100  | 0     | -    | 1450 | 4895  | 8                          | 1800 | -     | 5132 |  |
| 1150  | 31    | -    | 1500 | 4823  | 13                         | 1850 | -     | 6113 |  |
| 1200  | 2110  | -    | 1550 | -     | 102                        | 1900 | -     | 6371 |  |
| OPTIMUM ALPHA HIGH VOLTAGE:                                       |       |      | 1350 |       | OPTIMUM BETA HIGH VOLTAGE: |      |       | 1850 |  |

| BACKGROUND DATA |            |              |              |            |              |
|-----------------|------------|--------------|--------------|------------|--------------|
| ALPHA           |            |              | BETA         |            |              |
| TOTAL COUNTS    | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| 27              | 5          | 5.4          | 4908         | 5          | 981          |

| EFFICIENCY DATA |          |              |                   |              |            |           |         |            |              |
|-----------------|----------|--------------|-------------------|--------------|------------|-----------|---------|------------|--------------|
|                 | SOURCE # | ACTIVITY DPM | DETECTOR DISTANCE | TOTAL COUNTS | COUNT TIME | GROSS CPM | NET CPM | EFFICIENCY | CORR. FACTOR |
| ALPHA           | 5308     | 31279        | 1/4"              | 22852        | 5          | 4570      | 4565    | 14.6       | 6.8          |
| BETA            | 764/84   | 146000       | 1/2"              | 206267       | 5          | 41253     | 40272   | 27.6       | 3.6          |

| GAS DECAY CALIBRATION |        |        |        | ALPHA RELEASE CRITERIA   |  |  | BETA RELEASE CRITERIA  |  |  |
|-----------------------|--------|--------|--------|--|--|--|--|--|--|
| TIME                  | COUNTS | TIME   | COUNTS | 15000 dpm/100 cm <sup>2</sup> Maximum<br>5000 dpm/100 cm <sup>2</sup> Average<br>Window effective area = 434 cm <sup>2</sup><br>Efficiency (decimal Equivalent) = .146<br>5000 dpm X .146 = 730 cpm<br>730 cpm X 4.34 = 3168 cpm<br>3168 Averages to 5000 dpm/100cm <sup>2</sup><br>Total detector. (display cpm / 5000) |  |  | 15000 dpm/100 cm <sup>2</sup> Maximum<br>5000 dpm/100 cm <sup>2</sup> Average<br>Window effective area = 434 cm <sup>2</sup><br>Efficiency (decimal Equivalent) = .276<br>5000 dpm X .276 = 1380 cpm<br>1380 cpm X 4.34 = 5989 cpm<br>5989 Averages to 5000 dpm/100cm <sup>2</sup><br>Total detector. (display cpm / 5000) |  |  |
| INITIAL               | N/A    | 3 HOUR | N/A    | I.E. Display cpm X .63 = dpm/100cm <sup>2</sup>  |  |  | I.E. Display cpm X 1.2 = dpm/100cm <sup>2</sup>  |  |  |
| 1 HOUR                | N/A    | 4 HOUR | N/A    |  |  |  |  |  |  |
| 2 HOUR                | N/A    | 5 HOUR | N/A    |  |  |  |  |  |  |

|                |             |       |         |
|----------------|-------------|-------|---------|
| Calibrated by: | Larry Smith | DATE: | 1/14/98 |
| Signature:     |             |       |         |

Comments:

Calibrated for Beta measurement and documentation. Can be used for alpha detection only.

**IH & S Form # 204**  
**Forest Hills Site**

**FLOOR MONITOR**  
**CALIBRATION**

|                                |                              |                                |                         |                             |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|
| LUDLUM MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 /21 |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|

**PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE)**

| HV   | ALPHA | BETA | HV   | ALPHA | BETA | HV   | ALPHA | BETA  |
|------|-------|------|------|-------|------|------|-------|-------|
| 900  | -     | -    | 1250 | 4125  | 2    | 1600 | -     | 9911  |
| 950  | -     | -    | 1300 | 4797  | 6    | 1650 | -     | 18456 |
| 1000 | -     | -    | 1350 | 485   | 4    | 1700 | -     | 27217 |
| 1050 | -     | -    | 1400 | 5055  | 10   | 1750 | -     | 35538 |
| 1100 | 0     | -    | 1450 | 5112  | 16   | 1800 | -     | 41670 |
| 1150 | 238   | -    | 1500 | 5230  | 442  | 1850 | -     | 44638 |
| 1200 | 2572  | -    | 1550 | -     | 3693 | 1900 | -     | 46913 |

|                                    |             |                                   |             |
|------------------------------------|-------------|-----------------------------------|-------------|
| <b>OPTIMUM ALPHA HIGH VOLTAGE:</b> | <b>1350</b> | <b>OPTIMUM BETA HIGH VOLTAGE:</b> | <b>1850</b> |
|------------------------------------|-------------|-----------------------------------|-------------|

**BACKGROUND DATA**

| ALPHA        |            |              | BETA         |            |              |
|--------------|------------|--------------|--------------|------------|--------------|
| TOTAL COUNTS | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| 20           | 5 min      | 4            | 5681         | 5 min      | 1136         |

**EFFICIENCY DATA**

|       | SOURCE # | ACTIVITY DPM | DETECTOR DISTANCE | TOTAL COUNTS | COUNT TIME | GROSS CPM | NET CPM | EFFICIENCY | CORR. FACTOR |
|-------|----------|--------------|-------------------|--------------|------------|-----------|---------|------------|--------------|
| ALPHA | 7346     | 231000       | 1/4"              | 25075        | 5 min      | 5015      | 5011    | 16%        | 6.25         |
| BETA  | 764/84   | 146000       | 1/2"              | 223091       | 5 min      | 44618     | 43482   | 29.7%      | 3.37         |

**GAS DECAY CALIBRATION**

| TIME    | COUNTS | TIME   | COUNTS |
|---------|--------|--------|--------|
| INITIAL | N/A    | 3 HOUR | N/A    |
| 1 HOUR  | N/A    | 4 HOUR | N/A    |
| 2 HOUR  | N/A    | 5 HOUR | N/A    |

**ALPHA RELEASE CRITERIA**

15000 dpm/100 cm2 Maximum  
 5000 dpm/100 cm2 Average  
 Window effective area = 434 cm2

Efficiency (decimal Equivalent) = .16

5000 dpm X .16 = 800 cpm

800 cpm X 4.34 = 3472 cpm

3472 Averages to 5000 dpm/100cm2  
 Total detector. (display cpm / 5000)

I.E. Display cpm X .69 = dpm/100cm2

**BETA RELEASE CRITERIA**

15000 dpm/100 cm2 Maximum  
 5000 dpm/100 cm2 Average  
 Window effective area = 434 cm2

Efficiency (decimal Equivalent) = .297

5000 dpm X .297 = 1485 cpm

1485 cpm X 4.34 = 6444 cpm

6444 Averages to 5000 dpm/100cm2  
 Total detector. (display cpm / 5000)

I.E. Display cpm X 1.29 = dpm/100cm2

|                       |                       |              |         |
|-----------------------|-----------------------|--------------|---------|
| <b>Calibrated by:</b> | Carmen Vergari        | <b>DATE:</b> | 9/21/97 |
| <b>Signature:</b>     | <i>Carmen Vergari</i> |              |         |

**Comments:**

Calibrated for beta measurement only. Can be used for Alpha detection only.

**IH & S Form # 204**  
**Forest Hills Site**

**FLOOR MONITOR**  
**CALIBRATION**

|                                |                              |                                |                         |                             |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|
| LUDLUM MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 /21 |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|

**PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE)**

| HV   | ALPHA | BETA | HV   | ALPHA | BETA | HV   | ALPHA | BETA  |
|------|-------|------|------|-------|------|------|-------|-------|
| 900  | -     | -    | 1250 | 4376  | 0    | 1600 | -     | 3866  |
| 950  | -     | -    | 1300 | 5729  | 2    | 1650 | -     | 10185 |
| 1000 | -     | -    | 1350 | 6029  | 4    | 1700 | -     | 17642 |
| 1050 | -     | -    | 1400 | 6040  | 4    | 1750 | -     | 26012 |
| 1100 | 0     | -    | 1450 | 6279  | 5    | 1800 | -     | 34623 |
| 1150 | 48    | -    | 1500 | 6535  | 19   | 1850 | -     | 40291 |
| 1200 | 265   | -    | 1550 | -     | 521  | 1900 | -     | 42555 |

|                                    |             |                                   |             |
|------------------------------------|-------------|-----------------------------------|-------------|
| <b>OPTIMUM ALPHA HIGH VOLTAGE:</b> | <b>1350</b> | <b>OPTIMUM BETA HIGH VOLTAGE:</b> | <b>1850</b> |
|------------------------------------|-------------|-----------------------------------|-------------|

**BACKGROUND DATA**

| ALPHA        |            |              | BETA         |            |              |
|--------------|------------|--------------|--------------|------------|--------------|
| TOTAL COUNTS | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| 18           | 5          | 4            | 5094         | 5          | 1019         |

**EFFICIENCY DATA**

|       | SOURCE # | ACTIVITY DPM | DETECTOR DISTANCE | TOTAL COUNTS | COUNT TIME | GROSS CPM | NET CPM | EFFICIENCY | CORR. FACTOR |
|-------|----------|--------------|-------------------|--------------|------------|-----------|---------|------------|--------------|
| ALPHA | 5308     | 31279        | 1/4"              | 30255        | 5 min      | 6051      | 6047    | 19.3%      | 5.18         |
| BETA  | 764/84   | 145994       | 1/2"              | 205708       | 5 min      | 41142     | 40123   | 27.5%      | 3.64         |

**GAS DECAY CALIBRATION**

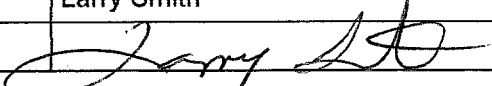
| TIME    | COUNTS | TIME   | COUNTS |
|---------|--------|--------|--------|
| INITIAL | N/A    | 3 HOUR | N/A    |
| 1 HOUR  | N/A    | 4 HOUR | N/A    |
| 2 HOUR  | N/A    | 5 HOUR | N/A    |

**ALPHA RELEASE CRITERIA**

15000 dpm/100 cm2 Maximum  
 5000 dpm/100 cm2 Average  
 Window effective area = 434 cm2  
 Efficiency (decimal Equivalent) = .193  
 5000 dpm X .193 = 965 cpm  
 965 cpm X 4.34 = 4188 cpm  
 4188 Averages to 5000 dpm/100cm2  
 Total detector. (display cpm / 5000)  
 I.E. Display cpm X .84 = dpm/100cm2

**BETA RELEASE CRITERIA**

15000 dpm/100 cm2 Maximum  
 5000 dpm/100 cm2 Average  
 Window effective area = 434 cm2  
 Efficiency (decimal Equivalent) = .275  
 5000 dpm X .275 = 1375 cpm  
 1375 cpm X 4.34 = 5968 cpm  
 5968 Averages to 5000 dpm/100cm2  
 Total detector. (display cpm / 5000)  
 I.E. Display cpm X 1.19 = dpm/100cm2

|                |   |       |        |
|----------------|---|-------|--------|
| Calibrated by: | Larry Smith   | DATE: | 4/8/97 |
| Signature:     |  |       |        |

Comments: Source DPM values effective 3/12/97.  
 Calibrated for Beta Documentation only. May be used for Alph Detection, but not for documentation.



**IH & S Form # 204**  
**Forest Hills Site**

**FLOOR MONITOR**  
**CALIBRATION**

|                                |                              |                                |                         |                             |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|
| LUDLUM MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 /21 |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|

**PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE)**

| HV   | ALPHA | BETA | HV   | ALPHA | BETA | HV   | ALPHA | BETA  |
|------|-------|------|------|-------|------|------|-------|-------|
| 900  | 0     | -    | 1250 | 2847  | 5    | 1600 | -     | 8156  |
| 950  | 0     | -    | 1300 | 3822  | 5    | 1650 | -     | 16532 |
| 1000 | 0     | -    | 1350 | 4399  | 2    | 1700 | -     | 25888 |
| 1050 | 0     | -    | 1400 | 4572  | 2    | 1750 | -     | 35938 |
| 1100 | 0     | -    | 1450 | 4823  | 6    | 1800 | -     | 44581 |
| 1150 | 0     | 1    | 1500 | 5014  | 159  | 1850 | -     | 46911 |
| 1200 | 456   | 1    | 1550 | -     | 2255 | 1900 | -     | 48153 |

|                             |      |                            |      |
|-----------------------------|------|----------------------------|------|
| OPTIMUM ALPHA HIGH VOLTAGE: | 1350 | OPTIMUM BETA HIGH VOLTAGE: | 1850 |
|-----------------------------|------|----------------------------|------|

**BACKGROUND DATA**

| ALPHA        |            |              | BETA         |            |              |
|--------------|------------|--------------|--------------|------------|--------------|
| TOTAL COUNTS | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| 17           | 5 min      | 3.4          | 7742         | 5          | 1548         |

**EFFICIENCY DATA**

|       | SOURCE #                | ACTIVITY<br>DPM             | DETECTOR<br>DISTANCE | TOTAL<br>COUNTS | COUNT<br>TIME | GROSS<br>CPM | NET CPM | EFFICIENCY | CORR.<br>FACTOR |
|-------|-------------------------|-----------------------------|----------------------|-----------------|---------------|--------------|---------|------------|-----------------|
| ALPHA | <del>7346</del><br>5308 | <del>231000</del><br>31,300 | 1/4"                 | 22179           | 5 min         | 4435.8       | 4432    | 14.2%      | 7.0             |
| BETA  | 764/84                  | 146000                      | 1/2"                 | 233914          | 5 min         | 46783        | 45235   | 31%        | 3.2             |

| GAS DECAY CALIBRATION |        |        |        | ALPHA RELEASE CRITERIA   |                  |                                   | BETA RELEASE CRITERIA  |  |  |
|-----------------------|--------|--------|--------|--|------------------|-----------------------------------|--|--|--|
| TIME                  | COUNTS | TIME   | COUNTS | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 |                  |                                   | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 |  |  |
| INITIAL               | N/A    | 3 HOUR | N/A    | Efficiency (decimal Equivalent) =  | .142             | Efficiency (decimal Equivalent) = | .31  |  |  |
| 1 HOUR                | N/A    | 4 HOUR | N/A    | 5000 dpm X   | .142 = 710 cpm   | 5000 dpm X                        | .31 = 1550 cpm   |  |  |
| 2 HOUR                | N/A    | 5 HOUR | N/A    | 710 cpm X  | 4.34 = 3081 cpm  | 1550 cpm X                        | 4.34 = 6727 cpm  |  |  |
|                       |        |        |        | 3081 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                 |                  |                                   | 6727 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                 |  |  |
|                       |        |        |        | I.E. Display cpm X   | .62 = dpm/100cm2 | I.E: Display cpm X                | 1.35 = dpm/100cm2  |  |  |

|                |                       |       |        |
|----------------|-----------------------|-------|--------|
| Calibrated by: | Carmen Vergari        | DATE: | 1/6/97 |
| Signature:     | <i>Carmen Vergari</i> |       |        |

Comments: Calibrated for Beta use only. May be used for Alpha detection but not to document.

**IH & S Form # 204**  
**Forest Hills Site**

**FLOOR MONITOR**  
**CALIBRATION**

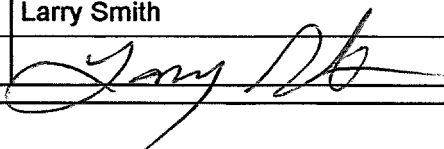
|                                 |                              |                                |                         |                             |
|---------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|
| SCUDLUM MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 /21 |
|---------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|

| PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE) |       |      |      |       |      |                            |       |       |      |
|---|-------|------|------|-------|------|----------------------------|-------|-------|------|
| HV  | ALPHA | BETA | HV   | ALPHA | BETA | HV                         | ALPHA | BETA  |      |
| 900   | N/A   | -    | 1250 | N/A   | 9    | 1600                       | N/A   | 5522  |      |
| 950   | N/A   | -    | 1300 | N/A   | 9    | 1650                       | N/A   | 12174 |      |
| 1000  | N/A   | -    | 1350 | N/A   | 11   | 1700                       | N/A   | 19826 |      |
| 1050  | N/A   | -    | 1400 | N/A   | 13   | 1750                       | N/A   | 29144 |      |
| 1100  | N/A   | -    | 1450 | N/A   | 13   | 1800                       | N/A   | 36513 |      |
| 1150  | N/A   | -    | 1500 | N/A   | 49   | 1850                       | N/A   | 39832 |      |
| 1200  | N/A   | -    | 1550 | N/A   | 1012 | 1900                       | N/A   | 40856 |      |
| OPTIMUM ALPHA HIGH VOLTAGE:                                       |       |      | N/A  |       |      | OPTIMUM BETA HIGH VOLTAGE: |       |       | 1850 |

| BACKGROUND DATA |            |              |              |            |              |
|-----------------|------------|--------------|--------------|------------|--------------|
| ALPHA           |            |              | BETA         |            |              |
| TOTAL COUNTS    | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| N/A             | N/A        | N/A          | 5586         | 5 MIN      | 1117         |

| EFFICIENCY DATA |          |              |                   |              |            |           |         |            |              |
|-----------------|----------|--------------|-------------------|--------------|------------|-----------|---------|------------|--------------|
|                 | SOURCE # | ACTIVITY DPM | DETECTOR DISTANCE | TOTAL COUNTS | COUNT TIME | GROSS CPM | NET CPM | EFFICIENCY | CORR. FACTOR |
| ALPHA           | 7346     | 231000       | N/A               | N/A          | N/A        | N/A       | N/A     | N/A        | N/A          |
| BETA            | 764/84   | 146000       | 1/2 "             | 201720       | 5 min      | 40344     | 39227   | 26.9%      | 3.72         |

| GAS DECAY CALIBRATION |        |        |        | ALPHA RELEASE CRITERIA   |  |  |  | BETA RELEASE CRITERIA  |  |  |  |
|-----------------------|--------|--------|--------|--|--|--|--|--|--|--|--|
| TIME                  | COUNTS | TIME   | COUNTS | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 |  |  |  | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 |  |  |  |
| INITIAL               | N/A    | 3 HOUR | N/A    | Efficiency (decimal Equivalent) = n/a  |  |  |  | Efficiency (decimal Equivalent) = .269   |  |  |  |
| 1 HOUR                | N/A    | 4 HOUR | N/A    | 5000 dpm X n/a = n/a cpm   |  |  |  | 5000 dpm X .269 = 1345 cpm   |  |  |  |
| 2 HOUR                | N/A    | 5 HOUR | N/A    | n/a cpm X 4.34 = n/a cpm   |  |  |  | 1345 cpm X 4.34 = 5837 cpm   |  |  |  |
|                       |        |        |        | n/a Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                  |  |  |  | 5837 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                 |  |  |  |
|                       |        |        |        | I.E. Display cpm X n/a = dpm/100cm2  |  |  |  | I.E. Display cpm X 1.17 = dpm/100cm2   |  |  |  |

|                |   |       |         |
|----------------|---|-------|---------|
| Calibrated by: | Larry Smith   | DATE: | 8/19/96 |
| Signature:     |  |       |         |

Comments: For beta use only

Forest Hills Site

CALIBRATION

|                                |                              |                                |                         |                             |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|
| LUDLUM MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 /21 |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|

PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE)

| HV   | ALPHA | BETA | HV   | ALPHA | BETA | HV   | ALPHA | BETA |
|------|-------|------|------|-------|------|------|-------|------|
| 900  | -     | -    | 1250 | -     | 0    | 1600 | -     | 520  |
| 950  | -     | -    | 1300 | -     | 1    | 1650 | -     | 1390 |
| 1000 | -     | -    | 1350 | -     | 6    | 1700 | -     | 2170 |
| 1050 | -     | -    | 1400 | -     | 8    | 1750 | -     | 3858 |
| 1100 | -     | -    | 1450 | -     | 7    | 1800 | -     | 4749 |
| 1150 | -     | -    | 1500 | -     | 15   | 1850 | -     | 5682 |
| 1200 | -     | 0    | 1550 | -     | 79   | 1900 | -     | 5999 |

|                             |     |                            |      |
|-----------------------------|-----|----------------------------|------|
| OPTIMUM ALPHA HIGH VOLTAGE: | N/A | OPTIMUM BETA HIGH VOLTAGE: | 1850 |
|-----------------------------|-----|----------------------------|------|

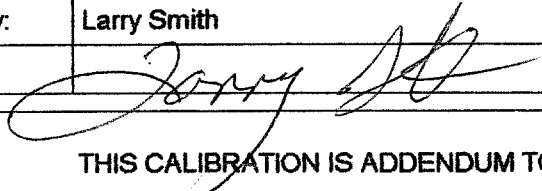
BACKGROUND DATA

| ALPHA        |            |              | BETA         |            |              |
|--------------|------------|--------------|--------------|------------|--------------|
| TOTAL COUNTS | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| N/A          | N/A        | N/A          | 6484         | 5 min      | 1297         |

EFFICIENCY DATA

|       | SOURCE # | ACTIVITY DPM | DETECTOR DISTANCE | TOTAL COUNTS | COUNT TIME | GROSS CPM | NET CPM | EFFICIENCY | CORR. FACTOR |
|-------|----------|--------------|-------------------|--------------|------------|-----------|---------|------------|--------------|
| ALPHA | 7346     | 231000       | N/A               | N/A          | N/A        | N/A       | N/A     | N/A        | N/A          |
| BETA  | 764/84   | 146000       | 1/2" "            | 160984       | 5 min      | 32196     | 30900   | 21.2%      | 4.72         |

| GAS DECAY CALIBRATION |        |        |        | ALPHA RELEASE CRITERIA   |  |  | BETA RELEASE CRITERIA  |  |  |
|-----------------------|--------|--------|--------|--|--|--|--|--|--|
| TIME                  | COUNTS | TIME   | COUNTS | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 |  |  | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 |  |  |
| INITIAL               | N/A    | 3 HOUR | N/A    | Efficiency (decimal Equivalent) = N/A  |  |  | Efficiency (decimal Equivalent) = .212   |  |  |
| 1 HOUR                | N/A    | 4 HOUR | N/A    | 5000 dpm X N/A = N/A cpm   |  |  | 5000 dpm X .212 = 1060 cpm   |  |  |
| 2 HOUR                | N/A    | 5 HOUR | N/A    | N/A cpm X 4.34 = N/A cpm   |  |  | 1060 cpm X 4.34 = 4600 cpm   |  |  |
|                       |        |        |        | N/A Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                  |  |  | 4600 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                 |  |  |
|                       |        |        |        | I.E. Display cpm X N/A = dpm/100cm2  |  |  | I.E. Display cpm X .92 = dpm/100cm2  |  |  |

|                |   |       |         |
|----------------|---|-------|---------|
| Calibrated by: | Larry Smith   | DATE: | 4/30/96 |
| Signature:     |  |       |         |

Comments: THIS CALIBRATION IS ADDENDUM TO THE NORMAL 1/2" DETECTOR DISTANCE.  
FOR BETA USE ONLY AT 1" DETECTOR TO SURFACE DISTANCE

**IH & S Form # 204**  
**Forest Hills Site**

**FLOOR MONITOR**  
**CALIBRATION**

|                                |                              |                                |                         |                             |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|
| LUDLUM MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 /21 |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|

**PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE)**

| HV   | ALPHA | BETA | HV   | ALPHA | BETA | HV   | ALPHA | BETA |
|------|-------|------|------|-------|------|------|-------|------|
| 900  | -     | -    | 1250 | -     | 0    | 1600 | -     | 520  |
| 950  | -     | -    | 1300 | -     | 1    | 1650 | -     | 1390 |
| 1000 | -     | -    | 1350 | -     | 6    | 1700 | -     | 2170 |
| 1050 | -     | -    | 1400 | -     | 8    | 1750 | -     | 3858 |
| 1100 | -     | -    | 1450 | -     | 7    | 1800 | -     | 4749 |
| 1150 | -     | -    | 1500 | -     | 15   | 1850 | -     | 5682 |
| 1200 | -     | 0    | 1550 | -     | 79   | 1900 | -     | 5999 |

|                             |     |                            |      |
|-----------------------------|-----|----------------------------|------|
| OPTIMUM ALPHA HIGH VOLTAGE: | N/A | OPTIMUM BETA HIGH VOLTAGE: | 1850 |
|-----------------------------|-----|----------------------------|------|

**BACKGROUND DATA**

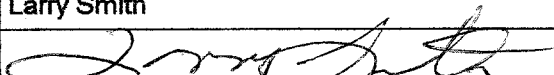
| ALPHA        |            |              | BETA         |            |              |
|--------------|------------|--------------|--------------|------------|--------------|
| TOTAL COUNTS | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| N/A          | N/A        | N/A          | 6484         | 5 min      | 1297         |

**EFFICIENCY DATA**

|       | SOURCE # | ACTIVITY DPM | DETECTOR DISTANCE | TOTAL COUNTS | COUNT TIME | GROSS CPM | NET CPM | EFFICIENCY | CORR. FACTOR |
|-------|----------|--------------|-------------------|--------------|------------|-----------|---------|------------|--------------|
| ALPHA | 7346     | 231000       | N/A               | N/A          | N/A        | N/A       | N/A     | N/A        | N/A          |
| BETA  | 764/84   | 146000       | 1/2"              | 194896       | 5 min      | 38979     | 37682   | 25.8%      | 3.88         |

|  |                               |                              |
|--|-------------------------------|------------------------------|
|  | <b>ALPHA RELEASE CRITERIA</b> | <b>BETA RELEASE CRITERIA</b> |
|--|-------------------------------|------------------------------|

|                              |  |  |
|------------------------------|--|--|
| <b>GAS DECAY CALIBRATION</b> | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 |
|                              | Efficiency (decimal Equivalent) = N/A  | Efficiency (decimal Equivalent) = .258.  |
|                              | 5000 dpm X N/A = N/A cpm   | 5000 dpm X .258 = 1290 cpm   |
|                              | N/A cpm X 4.34 = N/A cpm   | 1290 cpm X 4.34 = 5599 cpm   |
|                              | Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                      | Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                      |
|                              | I.E. Display cpm X N/A = dpm/100cm2  | I.E. Display cpm X 1.12 = dpm/100cm2   |

|                |   |       |         |
|----------------|---|-------|---------|
| Calibrated by: | Larry Smith   | DATE: | 4/30/96 |
| Signature:     |  |       |         |

Comments: FOR BETA USE ONLY

**IH & S Form # 204**  
**Forest Hills Site**

**FLOOR MONITOR**  
**CALIBRATION**

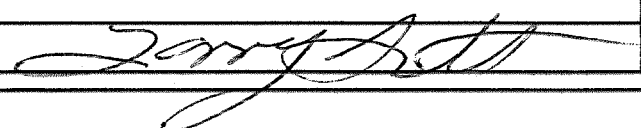
|                                |                              |                                |                         |                             |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|
| LUDLUM MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 /21 |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|

| PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE) |       |      |      |       |                            |      |       |      |  |
|---|-------|------|------|-------|----------------------------|------|-------|------|--|
| HV  | ALPHA | BETA | HV   | ALPHA | BETA                       | HV   | ALPHA | BETA |  |
| 900   | 0     | -    | 1250 | 22172 | 4                          | 1600 | -     | 380  |  |
| 950   | 0     | -    | 1300 | 31996 | 9                          | 1650 | -     | 1394 |  |
| 1000  | 0     | -    | 1350 | 36164 | 5                          | 1700 | -     | 2277 |  |
| 1050  | 0     | -    | 1400 | 38612 | 10                         | 1750 | -     | 3373 |  |
| 1100  | 0     | -    | 1450 | 39163 | 5                          | 1800 | -     | 4676 |  |
| 1150  | 27    | -    | 1500 | 39473 | 11                         | 1850 | -     | 5811 |  |
| 1200  | 4429  | 4    | 1550 | -     | 108                        | 1900 | -     | 6217 |  |
| OPTIMUM ALPHA HIGH VOLTAGE:                                       |       |      | 1350 |       | OPTIMUM BETA HIGH VOLTAGE: |      |       | 1850 |  |

| BACKGROUND DATA |            |              |              |            |              |
|-----------------|------------|--------------|--------------|------------|--------------|
| ALPHA           |            |              | BETA         |            |              |
| TOTAL COUNTS    | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| 36              | 5 min      | 7            | 5038         | 5 min      | 1008         |

| EFFICIENCY DATA |          |              |                   |              |            |           |         |            |              |
|-----------------|----------|--------------|-------------------|--------------|------------|-----------|---------|------------|--------------|
|                 | SOURCE # | ACTIVITY DPM | DETECTOR DISTANCE | TOTAL COUNTS | COUNT TIME | GROSS CPM | NET CPM | EFFICIENCY | CORR. FACTOR |
| ALPHA           | 7346     | 231000       | 1/4"              | 178929       | 5 min      | 35786     | 35779   | 15.5%      | 6.45         |
| BETA            | 764/84   | 146000       | 1/2"              | 188003       | 5 min      | 37601     | 36593   | 25.1%      | 3.98         |

| GAS DECAY CALIBRATION |        |        |        | ALPHA RELEASE CRITERIA   |  |  | BETA RELEASE CRITERIA  |  |  |
|-----------------------|--------|--------|--------|--|--|--|--|--|--|
| TIME                  | COUNTS | TIME   | COUNTS | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 |  |  | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 |  |  |
| INITIAL               | N/A    | 3 HOUR | N/A    | Efficiency (decimal Equivalent) = .155   |  |  | Efficiency (decimal Equivalent) = .251   |  |  |
| 1 HOUR                | N/A    | 4 HOUR | N/A    | 5000 dpm X .155 = 775 cpm  |  |  | 5000 dpm X .251 = 1255 cpm   |  |  |
| 2 HOUR                | N/A    | 5 HOUR | N/A    | 775 cpm X 4.34 = 3364 cpm  |  |  | 1255 cpm X 4.34 = 5447 cpm   |  |  |
|                       |        |        |        | 3364 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                 |  |  | 5447 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                 |  |  |
|                       |        |        |        | I.E. Display cpm X .67 = dpm/100cm2  |  |  | I.E. Display cpm X 1.09 = dpm/100cm2   |  |  |

|                |  |       |          |
|----------------|--|-------|----------|
| Calibrated by: | Larry Smith  | DATE: | 12-21-95 |
| Signature:     |  |       |          |

Comments:

FLOOR MONITOR  
CALIBRATION

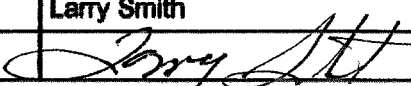
|                                |                              |                                |                         |                             |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|
| LUDLUM MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 /21 |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|

| PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE) |       |      |      |       |                            |      |       |      |  |
|---|-------|------|------|-------|----------------------------|------|-------|------|--|
| HV  | ALPHA | BETA | HV   | ALPHA | BETA                       | HV   | ALPHA | BETA |  |
| 900   | 0     | -    | 1250 | 27551 | 8                          | 1600 | -     | 679  |  |
| 950   | 0     | -    | 1300 | 36388 | 9                          | 1650 | -     | 1655 |  |
| 1000  | 0     | -    | 1350 | 39694 | 9                          | 1700 | -     | 2648 |  |
| 1050  | 0     | -    | 1400 | 41685 | 18                         | 1750 | -     | 3897 |  |
| 1100  | 1     | -    | 1450 | 42472 | 15                         | 1800 | -     | 5241 |  |
| 1150  | 228   | -    | 1500 | 42912 | 22                         | 1850 | -     | 6240 |  |
| 1200  | 9875  | 5    | 1550 | -     | 160                        | 1900 | -     | 6612 |  |
| OPTIMUM ALPHA HIGH VOLTAGE:                                       |       |      | 1300 |       | OPTIMUM BETA HIGH VOLTAGE: |      |       | 1850 |  |

| BACKGROUND DATA |            |              |              |            |              |
|-----------------|------------|--------------|--------------|------------|--------------|
| ALPHA           |            |              | BETA         |            |              |
| TOTAL COUNTS    | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| 31              | 5 min      | 6.2          | 5378         | 5 min      | 1075.6       |

| EFFICIENCY DATA |          |              |                   |              |            |           |         |            |              |
|-----------------|----------|--------------|-------------------|--------------|------------|-----------|---------|------------|--------------|
|                 | SOURCE # | ACTIVITY DPM | DETECTOR DISTANCE | TOTAL COUNTS | COUNT TIME | GROSS CPM | NET CPM | EFFICIENCY | CORR. FACTOR |
| ALPHA           | 7346     | 231000       | 1/4"              | 174512       | 5 min      | 34902     | 34896   | 15.1%      | 6.6          |
| BETA            | 764/84   | 146000       | 1/2"              | 187694       | 5 min      | 37539     | 36463   | 25%        | 4.0          |

| GAS DECAY CALIBRATION |        |        |        | ALPHA RELEASE CRITERIA   |  |  |  | BETA RELEASE CRITERIA  |  |  |  |
|-----------------------|--------|--------|--------|--|--|--|--|--|--|--|--|
| TIME                  | COUNTS | TIME   | COUNTS | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 |  |  |  | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 |  |  |  |
| INITIAL               | N/A    | 3 HOUR | N/A    | Efficiency (decimal Equivalent) = .151   |  |  |  | Efficiency (decimal Equivalent) = .25  |  |  |  |
| 1 HOUR                | N/A    | 4 HOUR | N/A    | 5000 dpm X .151 = 755 cpm  |  |  |  | 5000 dpm X .25 = 1250 cpm  |  |  |  |
| 2 HOUR                | N/A    | 5 HOUR | N/A    | 755 cpm X 4.34 = 3276 cpm  |  |  |  | 1250 cpm X 4.34 = 5425 cpm   |  |  |  |
|                       |        |        |        | 3276 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                 |  |  |  | 5425 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                 |  |  |  |
|                       |        |        |        | I.E. Display cpm X .66 = dpm/100cm2  |  |  |  | I.E: Display cpm X 1.09 = dpm/100cm2   |  |  |  |

|                |   |       |         |
|----------------|---|-------|---------|
| Calibrated by: | Larry Smith   | DATE: | 9-27-95 |
| Signature:     |  |       |         |

Comments:

**IH & S Form # 204**  
**Forest Hills Site**

**FLOOR MONITOR**  
**CALIBRATION**

|                                |                              |                                |                         |                             |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|
| LUDLUM MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 /21 |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|

**PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE)**

| HV   | ALPHA | BETA | HV   | ALPHA | BETA | HV   | ALPHA | BETA |
|------|-------|------|------|-------|------|------|-------|------|
| 900  | 0     | ---  | 1250 | 23566 | 2    | 1600 | ---   | 561  |
| 950  | 0     | ---  | 1300 | 33878 | 5    | 1650 | ---   | 1424 |
| 1000 | 0     | ---  | 1350 | 37875 | 8    | 1700 | ---   | 2334 |
| 1050 | 0     | ---  | 1400 | 39579 | 8    | 1750 | ---   | 3466 |
| 1100 | 0     | ---  | 1450 | 39998 | 6    | 1800 | ---   | 4771 |
| 1150 | 35    | ---  | 1500 | 40994 | 13   | 1850 | ---   | 5504 |
| 1200 | 6016  | 2    | 1550 | ---   | 102  | 1900 | ---   | 5846 |

|                                    |             |                                   |             |
|------------------------------------|-------------|-----------------------------------|-------------|
| <b>OPTIMUM ALPHA HIGH VOLTAGE:</b> | <b>1300</b> | <b>OPTIMUM BETA HIGH VOLTAGE:</b> | <b>1850</b> |
|------------------------------------|-------------|-----------------------------------|-------------|

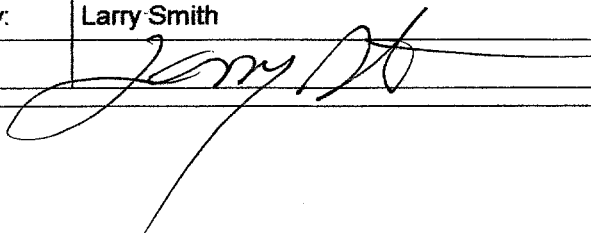
**BACKGROUND DATA**

| ALPHA        |            |              | BETA         |            |              |
|--------------|------------|--------------|--------------|------------|--------------|
| TOTAL COUNTS | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| 24           | 5 Min.     | 4.8          | 5413         | 5 Min.     | 1083         |

**EFFICIENCY DATA**

|       | SOURCE # | ACTIVITY DPM | DETECTOR DISTANCE | TOTAL COUNTS | COUNT TIME | GROSS CPM | NET CPM | EFFICIENCY | CORR. FACTOR |
|-------|----------|--------------|-------------------|--------------|------------|-----------|---------|------------|--------------|
| ALPHA | 7346     | 231000       | 1/4"              | 172477       | 5 Min.     | 34495     | 34490   | 14.9%      | 6.7          |
| BETA  | 764/84   | 146000       | 1/2"              | 187084       | 5 Min.     | 37417     | 36334   | 24.9%      | 4.0          |

| GAS DECAY CALIBRATION |        |        |        | ALPHA RELEASE CRITERIA   |                  |                                   | BETA RELEASE CRITERIA  |  |  |
|-----------------------|--------|--------|--------|--|------------------|-----------------------------------|--|--|--|
| TIME                  | COUNTS | TIME   | COUNTS | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 |                  |                                   | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 |  |  |
| INITIAL               | N/A    | 3 HOUR | N/A    | Efficiency (decimal Equivalent) =  | .149             | Efficiency (decimal Equivalent) = | .249   |  |  |
| 1 HOUR                | N/A    | 4 HOUR | N/A    | 5000 dpm X   | .014 = 745 cpm   | 5000 dpm X                        | .249 = 1245 cpm  |  |  |
| 2 HOUR                | N/A    | 5 HOUR | N/A    | 745 cpm X 4.34 =   | 3233 cpm         | 1245 cpm X 4.34 =                 | 5403 cpm   |  |  |
|                       |        |        |        | 3233 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                 |                  |                                   | 5403 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                 |  |  |
|                       |        |        |        | I.E. Display cpm X   | .65 = dpm/100cm2 | I.E. Display cpm X                | 1.08 = dpm/100cm2  |  |  |

|                |   |       |         |
|----------------|---|-------|---------|
| Calibrated by: | Larry Smith   | DATE: | 6/19/95 |
| Signature:     |  |       |         |

|           |  |
|-----------|--|
| Comments: |  |
|-----------|--|

**IH & S Form # 204**  
**Forest Hills Site**

**FLOOR MONITOR**  
**CALIBRATION**

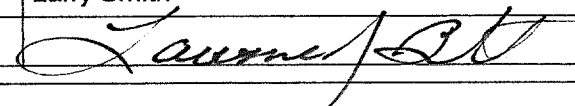
|                                |                              |                                |                         |                             |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|
| LUDLUM MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 /21 |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|

| PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE) |       |      |      |       |                            |      |       |      |  |
|---|-------|------|------|-------|----------------------------|------|-------|------|--|
| HV  | ALPHA | BETA | HV   | ALPHA | BETA                       | HV   | ALPHA | BETA |  |
| 900   | 0     | -    | 1250 | 21507 | 6                          | 1600 | -     | 411  |  |
| 950   | 0     | -    | 1300 | 34315 | 10                         | 1650 | -     | 1246 |  |
| 1000  | 0     | -    | 1350 | 39638 | 9                          | 1700 | -     | 2301 |  |
| 1050  | 0     | -    | 1400 | 42783 | 6                          | 1750 | -     | 3243 |  |
| 1100  | 0     | -    | 1450 | 43527 | 7                          | 1800 | -     | 4862 |  |
| 1150  | 17    | -    | 1500 | 44783 | 8                          | 1850 | -     | 5957 |  |
| 1200  | 8447  | 4    | 1550 | -     | 110                        | 1900 | -     | 6281 |  |
| OPTIMUM ALPHA HIGH VOLTAGE:                                       |       |      | 1300 |       | OPTIMUM BETA HIGH VOLTAGE: |      |       | 1850 |  |

| BACKGROUND DATA |            |              |              |            |              |
|-----------------|------------|--------------|--------------|------------|--------------|
| ALPHA           |            |              | BETA         |            |              |
| TOTAL COUNTS    | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| 55              | 5 min      | 10.1         | 4861         | 5 min      | 972          |

| EFFICIENCY DATA |          |              |                   |              |            |           |         |            |              |
|-----------------|----------|--------------|-------------------|--------------|------------|-----------|---------|------------|--------------|
|                 | SOURCE # | ACTIVITY DPM | DETECTOR DISTANCE | TOTAL COUNTS | COUNT TIME | GROSS CPM | NET CPM | EFFICIENCY | CORR. FACTOR |
| ALPHA           | 7346     | 231000       | 1/4"              | 163838       | 5 min      | 32768     | 32758   | 14.2       | 7            |
| BETA            | 764/84   | 146000       | 1/2"              | 203324       | 5 min      | 40664     | 39692   | 27.2       | 3.7          |

| GAS DECAY CALIBRATION |        |        |        | ALPHA RELEASE CRITERIA   |  |  | BETA RELEASE CRITERIA  |  |  |
|-----------------------|--------|--------|--------|--|--|--|--|--|--|
| TIME                  | COUNTS | TIME   | COUNTS | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 |  |  | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 |  |  |
| INITIAL               | N/A    | 3 HOUR | N/A    | Efficiency (decimal Equivalent) = .142   |  |  | Efficiency (decimal Equivalent) = .272   |  |  |
| 1 HOUR                | N/A    | 4 HOUR | N/A    | 5000 dpm X .142 = 710 cpm  |  |  | 5000 dpm X .272 = 1360 cpm   |  |  |
| 2 HOUR                | N/A    | 5 HOUR | N/A    | 710 cpm X 4.34 = 3081 cpm  |  |  | 1360 cpm X 4.34 = 5902 cpm   |  |  |
|                       |        |        |        | 3081 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                 |  |  | 5902 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                 |  |  |
|                       |        |        |        | I.E. Display cpm X .62 = dpm/100cm2  |  |  | I.E. Display cpm X 1.18 = dpm/100cm2   |  |  |

|                |   |       |         |
|----------------|---|-------|---------|
| Calibrated by: | Larry Smith   | DATE: | 3/16/95 |
| Signature:     |  |       |         |

Comments:



**IH & S Form # 204**  
**Forest Hills Site**

**FLOOR MONITOR**  
**CALIBRATION**

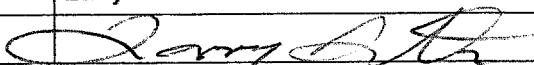
|                                |                              |                                |                         |                              |
|--------------------------------|------------------------------|--------------------------------|-------------------------|------------------------------|
| LUDLUM MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 / 21 |
|--------------------------------|------------------------------|--------------------------------|-------------------------|------------------------------|

| PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE) |       |      |      |       |      |                            |       |       |      |  |  |
|---|-------|------|------|-------|------|----------------------------|-------|-------|------|--|--|
| HV  | ALPHA | BETA | HV   | ALPHA | BETA | HV                         | ALPHA | BETA  |      |  |  |
| 900   | 0     | -    | 1250 | 24595 | 9    | 1600                       | -     | 3657  |      |  |  |
| 950   | 0     | -    | 1300 | 36958 | 9    | 1650                       | -     | 9913  |      |  |  |
| 1000  | 0     | -    | 1350 | 41335 | 7    | 1700                       | -     | 17425 |      |  |  |
| 1050  | 0     | -    | 1400 | 43504 | 8    | 1750                       | -     | 25479 |      |  |  |
| 1100  | 0     | -    | 1450 | 44598 | 10   | 1800                       | -     | 33621 |      |  |  |
| 1150  | 37    | -    | 1500 | 44951 | 23   | 1850                       | -     | 38938 |      |  |  |
| 1200  | 1045  | 3    | 1550 | -     | 543  | 1900                       | -     | 41994 |      |  |  |
| OPTIMUM ALPHA HIGH VOLTAGE:                                       |       |      | 1300 |       |      | OPTIMUM BETA HIGH VOLTAGE: |       |       | 1850 |  |  |

| BACKGROUND DATA |            |              |              |            |              |
|-----------------|------------|--------------|--------------|------------|--------------|
| ALPHA           |            |              | BETA         |            |              |
| TOTAL COUNTS    | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| 43              | 5 min      | 8.6          | 4961         | 5 min      | 992          |

| EFFICIENCY DATA |          |              |                   |              |            |           |         |            |              |
|-----------------|----------|--------------|-------------------|--------------|------------|-----------|---------|------------|--------------|
|                 | SOURCE # | ACTIVITY DPM | DETECTOR DISTANCE | TOTAL COUNTS | COUNT TIME | GROSS CPM | NET CPM | EFFICIENCY | CORR. FACTOR |
| ALPHA           | 7346     | 231000       | 1/4"              | 182965       | 5 min      | 36593     | 36584   | 15.8%      | 6.33         |
| BETA            | 764/84   | 146000       | 1/2"              | 199272       | 5 min      | 39854     | 38862   | 26.6%      | 3.76         |

| GAS DECAY CALIBRATION |        |        |        | ALPHA RELEASE CRITERIA   |  |  | BETA RELEASE CRITERIA  |  |  |
|-----------------------|--------|--------|--------|--|--|--|--|--|--|
| TIME                  | COUNTS | TIME   | COUNTS | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 |  |  | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2 |  |  |
| INITIAL               | N/A    | 3 HOUR | N/A    | Efficiency (decimal Equivalent) = .158   |  |  | Efficiency (decimal Equivalent) = .266   |  |  |
| 1 HOUR                | N/A    | 4 HOUR | N/A    | 5000 dpm X .158 = 790 cpm  |  |  | 5000 dpm X .266 = 1330 cpm   |  |  |
| 2 HOUR                | N/A    | 5 HOUR | N/A    | 790 cpm X 4.34 = 3429 cpm  |  |  | 1330 cpm X 4.34 = 5772 cpm   |  |  |
|                       |        |        |        | 3429 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                 |  |  | 5772 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)                 |  |  |
|                       |        |        |        | I.E. Display cpm X .69 = dpm/100cm2  |  |  | I.E. Display cpm X 1.15 = dpm/100cm2   |  |  |

|                |   |       |          |
|----------------|---|-------|----------|
| Calibrated by: | Larry Smith   | DATE: | 12/14/94 |
| Signature:     |  |       |          |

Comments:

**IH & S Form # 204**  
**Forest Hills Site**

**FLOOR MONITOR**  
**CALIBRATION**

|                                |                              |                                |                         |                             |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|
| LUDLUM MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 /21 |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|

**PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE)**

| HV   | ALPHA | BETA | HV   | ALPHA | BETA | HV   | ALPHA | BETA  |
|------|-------|------|------|-------|------|------|-------|-------|
| 900  | 0     | -    | 1250 | 43780 | 17   | 1600 | -     | 8435  |
| 950  | 0     | -    | 1300 | 49212 | 17   | 1650 | -     | 17248 |
| 1000 | 0     | -    | 1350 | 50770 | 24   | 1700 | -     | 26182 |
| 1050 | 0     | -    | 1400 | 51343 | 23   | 1750 | -     | 35883 |
| 1100 | 62    | -    | 1450 | 51770 | 23   | 1800 | -     | 42662 |
| 1150 | 9633  | -    | 1500 | -     | 184  | 1850 | -     | 45168 |
| 1200 | 33709 | 6    | 1550 | -     | 2422 | 1900 | -     | 47309 |

|                             |      |                            |      |
|-----------------------------|------|----------------------------|------|
| OPTIMUM ALPHA HIGH VOLTAGE: | 1300 | OPTIMUM BETA HIGH VOLTAGE: | 1850 |
|-----------------------------|------|----------------------------|------|

**BACKGROUND DATA**

| ALPHA        |            |              | BETA         |            |              |
|--------------|------------|--------------|--------------|------------|--------------|
| TOTAL COUNTS | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| 71           | 5 min      | 14           | 5851         | 5 min      | 1170         |

**EFFICIENCY DATA**

|       | SOURCE # | ACTIVITY DPM | DETECTOR DISTANCE | TOTAL COUNTS | COUNT TIME | GROSS CPM | NET CPM | EFFICIENCY | CORR. FACTOR |
|-------|----------|--------------|-------------------|--------------|------------|-----------|---------|------------|--------------|
| ALPHA | 7346     | 231000       | 1/4 "             | 246135       | 5 min      | 49227     | 49213   | 21.3       | 4.7          |
| BETA  | 764/84   | 146000       | 1/2"              | 240312       | 5 min      | 48062     | 46892   | 32.1       | 3.1          |

**GAS DECAY CALIBRATION**

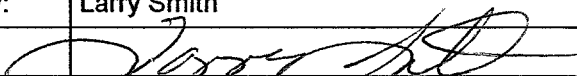
| TIME    | COUNTS | TIME   | COUNTS |
|---------|--------|--------|--------|
| INITIAL | N/A    | 3 HOUR | N/A    |
| 1 HOUR  | N/A    | 4 HOUR | N/A    |
| 2 HOUR  | N/A    | 5 HOUR | N/A    |

**ALPHA RELEASE CRITERIA**

15000 dpm/100 cm2 Maximum  
 5000 dpm/100 cm2 Average  
 Window effective area = 434 cm2  
 Efficiency (decimal Equivalent) = .213  
 5000 dpm X .213 = 1065 cpm  
 1065 cpm X 4.34 = 4622 cpm  
 4622 Averages to 5000 dpm/100cm2  
 Total detector. (display cpm / 5000)  
 I.E. Display cpm X .92 = dpm/100cm2

**BETA RELEASE CRITERIA**

15000 dpm/100 cm2 Maximum  
 5000 dpm/100 cm2 Average  
 Window effective area = 434 cm2  
 Efficiency (decimal Equivalent) = .321  
 5000 dpm X .321 = 4605 cpm  
 1605 cpm X 4.34 = 6966 cpm  
 6966 Averages to 5000 dpm/100cm2  
 Total detector.(display cpm / 5000)  
 I.E: Display cpm X 1.39 = dpm/100cm2

|                |   |       |        |
|----------------|---|-------|--------|
| Calibrated by: | Larry Smith   | DATE: | 9/6/94 |
| Signature:     |  |       |        |

Comments:

**IH & S Form # 204**  
**Forest Hills Site**

**FLOOR MONITOR**  
**CALIBRATION**

|                                |                              |                                |                         |                             |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|
| LUDLUM MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 /21 |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|

**PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE)**

| HV   | ALPHA | BETA | HV   | ALPHA | BETA | HV   | ALPHA | BETA |
|------|-------|------|------|-------|------|------|-------|------|
| 900  | 0     | ---  | 1250 | 4971  | 5    | 1600 | ---   | 1169 |
| 950  | 0     | ---  | 1300 | 5574  | 8    | 1650 | ---   | 1839 |
| 1000 | 0     | ---  | 1350 | 5818  | 18   | 1700 | ---   | 3085 |
| 1050 | 0     | ---  | 1400 | 6171  | 17   | 1750 | ---   | 4758 |
| 1100 | 2     | ---  | 1450 | 6271  | 19   | 1800 | ---   | 5925 |
| 1150 | 82    | ---  | 1500 | ---   | 35   | 1850 | ---   | 6484 |
| 1200 | 3272  | 5    | 1550 | ---   | 316  | 1900 | ---   | 6813 |

|                             |      |                            |      |
|-----------------------------|------|----------------------------|------|
| OPTIMUM ALPHA HIGH VOLTAGE: | 1300 | OPTIMUM BETA HIGH VOLTAGE: | 1850 |
|-----------------------------|------|----------------------------|------|

**BACKGROUND DATA**

| ALPHA        |            |              | BETA         |            |              |
|--------------|------------|--------------|--------------|------------|--------------|
| TOTAL COUNTS | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| 59           | 5          | 12           | 5494         | 5          | 1098         |

**EFFICIENCY DATA**

|       | SOURCE # | ACTIVITY DPM | DETECTOR DISTANCE | TOTAL COUNTS | COUNT TIME | GROSS CPM | NET CPM | EFFICIENCY | CORR. FACTOR |
|-------|----------|--------------|-------------------|--------------|------------|-----------|---------|------------|--------------|
| ALPHA | 7346     | 231000       | 1/4"              | 214082       | 5          | 42816     | 42804   | 18.53      | 5.4          |
| BETA  | 764/84   | 146000       | 1/2"              | 219537       | 5          | 43907     | 42809   | 29.3       | 3.4          |

**GAS DECAY CALIBRATION**

| TIME    | COUNTS | TIME   | COUNTS |
|---------|--------|--------|--------|
| INITIAL | N/A    | 3 HOUR | N/A    |
| 1 HOUR  | N/A    | 4 HOUR | N/A    |
| 2 HOUR  | N/A    | 5 HOUR | N/A    |

**ALPHA RELEASE CRITERIA**

15000 dpm/100 cm<sup>2</sup> Maximum  
 5000 dpm/100 cm<sup>2</sup> Average  
 Window effective area = 434 cm<sup>2</sup>  
 Efficiency (decimal Equivalent) = .185  
 5000 dpm X .185 = 925 cpm  
 925 cpm X 4.34 = 4014 cpm  
 4014 Averages to 5000 dpm/100cm<sup>2</sup>  
 Total detector. (display cpm / 5000)  
 I.E. Display cpm X .80 = dpm/100cm<sup>2</sup>

**BETA RELEASE CRITERIA**

15000 dpm/100 cm<sup>2</sup> Maximum  
 5000 dpm/100 cm<sup>2</sup> Average  
 Window effective area = 434 cm<sup>2</sup>  
 Efficiency (decimal Equivalent) = .293  
 5000 dpm X .293 = 1465 cpm  
 1465 cpm X 4.34 = 6358 cpm  
 6358 Averages to 5000 dpm/100cm<sup>2</sup>  
 Total detector. (display cpm / 5000)  
 I.E: Display cpm X 1.27 = dpm/100cm<sup>2</sup>

|                |         |       |        |
|----------------|---------|-------|--------|
| Calibrated by: | L.Smith | DATE: | 6/2/94 |
|----------------|---------|-------|--------|

Signature: 

Comments:

**IH & S Form # 204**  
**Forest Hills Site**

**FLOOR MONITOR**  
**CALIBRATION**

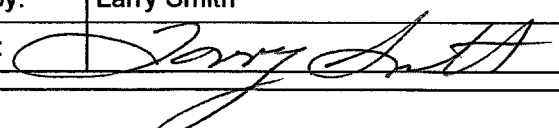
|                                |                              |                                |                         |                             |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|
| SCALER MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 /21 |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|

| PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE) |       |      |      |       |      |                            |       |      |      |
|---|-------|------|------|-------|------|----------------------------|-------|------|------|
| HV  | ALPHA | BETA | HV   | ALPHA | BETA | HV                         | ALPHA | BETA |      |
| 900   | 0     | ---  | 1250 | 5590  | 5    | 1600                       | ---   | 917  |      |
| 950   | 0     | ---  | 1300 | 6495  | 11   | 1650                       | ---   | 1908 |      |
| 1000  | 0     | ---  | 1350 | 6556  | 9    | 1700                       | ---   | 3195 |      |
| 1050  | 0     | ---  | 1400 | 6688  | 12   | 1750                       | ---   | 4577 |      |
| 1100  | 1     | ---  | 1450 | 6951  | 9    | 1800                       | ---   | 5751 |      |
| 1150  | 185   | ---  | 1500 | 6963  | 14   | 1850                       | ---   | 6375 |      |
| 1200  | 3947  | 3    | 1550 | ---   | 177  | 1900                       | ---   | 6718 |      |
| OPTIMUM ALPHA HIGH VOLTAGE:                                       |       |      | 1300 |       |      | OPTIMUM BETA HIGH VOLTAGE: |       |      | 1850 |

| BACKGROUND DATA |            |              |              |            |              |
|-----------------|------------|--------------|--------------|------------|--------------|
| ALPHA           |            |              | BETA         |            |              |
| TOTAL COUNTS    | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| 40              | 5 Minutes  | 8            | 5536         | 5 Minutes  | 1107         |

| EFFICIENCY DATA |          |              |                   |              |            |           |         |            |              |
|-----------------|----------|--------------|-------------------|--------------|------------|-----------|---------|------------|--------------|
|                 | SOURCE # | ACTIVITY DPM | DETECTOR DISTANCE | TOTAL COUNTS | COUNT TIME | GROSS CPM | NET CPM | EFFICIENCY | CORR. FACTOR |
| ALPHA           | 7346     | 231000       | 1/4"              | 225026       | 5 Min.     | 45005     | 44997   | 19.5%      | 4.75.1       |
| BETA            | 764/84   | 146000       | 1/2"              | 220213       | 5 Min.     | 44042     | 42935   | 29.4%      | 3.4          |

| GAS DECAY CALIBRATION |        |        |        | ALPHA RELEASE CRITERIA   |  |  | BETA RELEASE CRITERIA  |  |  |
|-----------------------|--------|--------|--------|--|--|--|--|--|--|
| TIME                  | COUNTS | TIME   | COUNTS | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2<br>Efficiency (decimal Equivalent) = .195 |  |  | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2<br>Efficiency (decimal Equivalent) = .294 |  |  |
| INITIAL               | N/A    | 3 HOUR | N/A    | 5000 dpm X .195 = 975 cpm  |  |  | 5000 dpm X .294 = 1470 cpm   |  |  |
| 1 HOUR                | N/A    | 4 HOUR | N/A    | 975 cpm X 4.34 = 4232 cpm  |  |  | 1470 cpm X 4.34 = 6380 cpm   |  |  |
| 2 HOUR                | N/A    | 5 HOUR | N/A    | 4232 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)   |  |  | 6380 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)   |  |  |
|                       |        |        |        | I.E. Display cpm X .84 = dpm/100cm2  |  |  | I.E. Display cpm X 1.28 = dpm/100cm2   |  |  |

|                |   |       |         |
|----------------|---|-------|---------|
| Calibrated by: | Larry Smith   | DATE: | 2/24/94 |
| Signature:     |  |       |         |

Comments:

**IH & S Form # 204**  
**Forest Hills Site**

**FLOOR MONITOR**  
**CALIBRATION**

|                                |                              |                                |                         |                             |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|
| LUDLUM MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 /21 |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|

**PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE)**

| HV   | ALPHA | BETA | HV   | ALPHA | BETA  | HV   | ALPHA | BETA  |
|------|-------|------|------|-------|-------|------|-------|-------|
| 900  | 0     | ---  | 1250 | 47544 | 49    | 1600 | 50553 | 18753 |
| 950  | 0     | ---  | 1300 | 48446 | 37    | 1650 | 51073 | 28297 |
| 1000 | 28    | ---  | 1350 | 48900 | 33    | 1700 | 51560 | 36798 |
| 1050 | 5042  | ---  | 1400 | 49737 | 43    | 1750 | 52364 | 42641 |
| 1100 | 32715 | ---  | 1450 | 49638 | 609   | 1800 | 52674 | 44308 |
| 1150 | 43112 | ---  | 1500 | 49736 | 4848  | 1850 | 52793 | 44327 |
| 1200 | 46211 | 42   | 1550 | 40431 | 11802 | 1900 | 54552 | 45013 |

|                             |      |                            |      |
|-----------------------------|------|----------------------------|------|
| OPTIMUM ALPHA HIGH VOLTAGE: | 1300 | OPTIMUM BETA HIGH VOLTAGE: | 1800 |
|-----------------------------|------|----------------------------|------|

**BACKGROUND DATA**

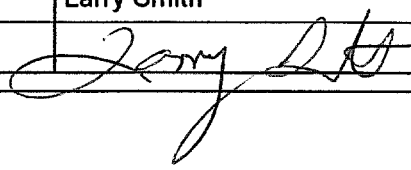
| ALPHA        |            |              | BETA         |            |              |
|--------------|------------|--------------|--------------|------------|--------------|
| TOTAL COUNTS | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| 44           | 5 Minutes  | 8.8          | 5038         | 5 Minutes  | 1008         |

**EFFICIENCY DATA**

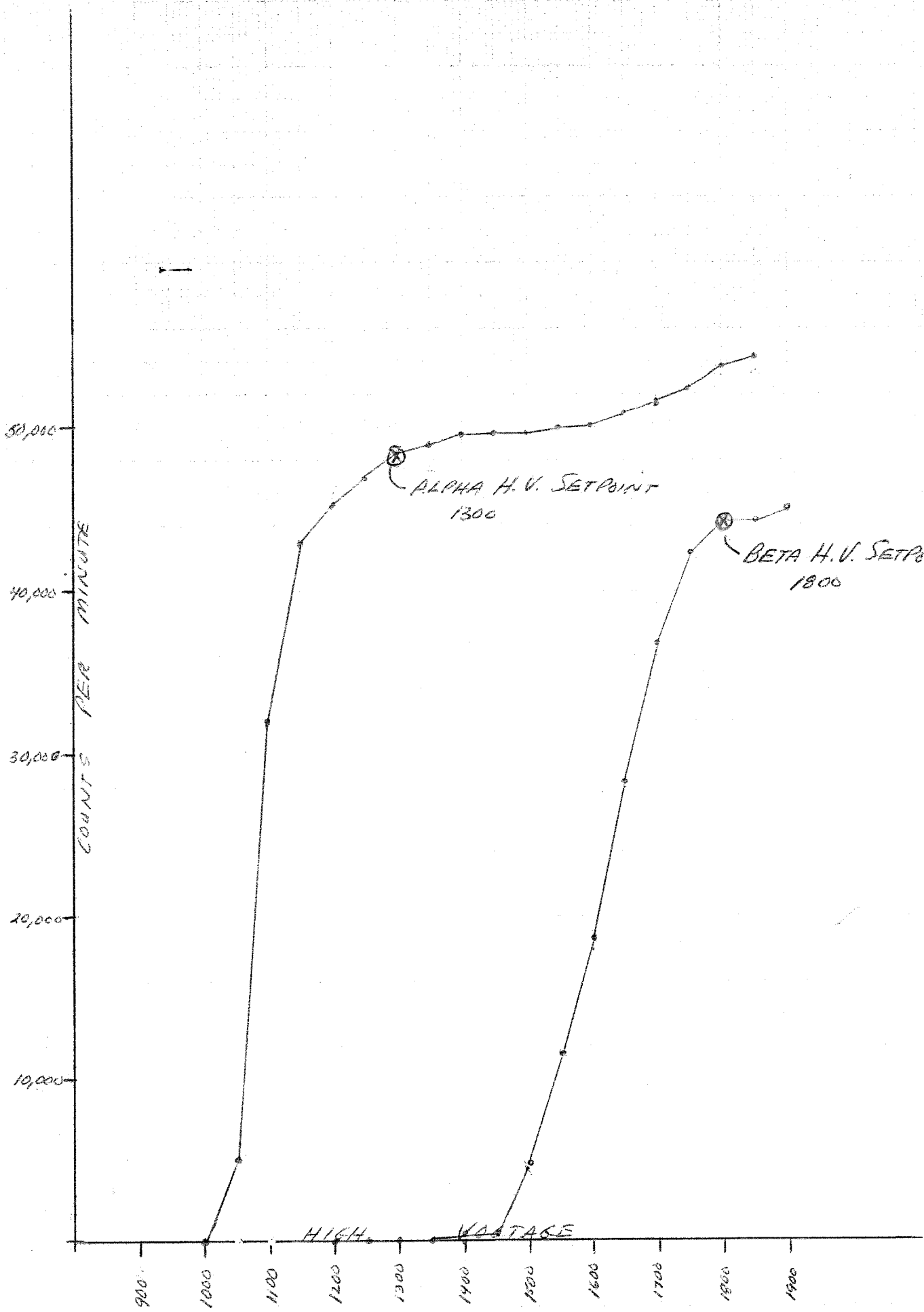
|       | SOURCE # | ACTIVITY DPM | DETECTOR DISTANCE | TOTAL COUNTS | COUNT TIME | GROSS CPM | NET CPM | EFFICIENCY | CORR. FACTOR |
|-------|----------|--------------|-------------------|--------------|------------|-----------|---------|------------|--------------|
| ALPHA | 7346     | 231000       | 1/4"              | 246431       | 5 Min.     | 49286     | 49277   | 21.3       | 4.7          |
| BETA  | 764/84   | 146000       | 1/2"              | 220515       | 5 Min.     | 44103     | 43095   | 29.5       | 3.4          |

| GAS DECAY CALIBRATION |  |  |  | ALPHA RELEASE CRITERIA |  |  | BETA RELEASE CRITERIA |  |  |
|-----------------------|--|--|--|------------------------|--|--|-----------------------|--|--|
|-----------------------|--|--|--|------------------------|--|--|-----------------------|--|--|

| GAS DECAY CALIBRATION |        |        |        | ALPHA RELEASE CRITERIA   |   |              | BETA RELEASE CRITERIA  |   |              |
|-----------------------|--------|--------|--------|--|---|--------------|--|---|--------------|
| TIME                  | COUNTS | TIME   | COUNTS | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2<br>Efficiency (decimal Equivalent) = .213 |   |              | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2<br>Efficiency (decimal Equivalent) = .295 |   |              |
| INITIAL               | N/A    | 3 HOUR | N/A    | 5000 dpm X .213 =  | 1065  | cpm          | 5000 dpm X .295 =  | 1475  | cpm          |
| 1 HOUR                | N/A    | 4 HOUR | N/A    | 1065 cpm X 4.34 =  | 4622  | cpm          | 1475 cpm X 4.34 =  | 6402  | cpm          |
| 2 HOUR                | N/A    | 5 HOUR | N/A    | 4622   | Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000) |              | 6402   | Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000) |              |
|                       |        |        |        | I.E. Display cpm X   | .92   | = dpm/100cm2 | I.E. Display cpm X   | 1.28  | = dpm/100cm2 |

|                |   |       |          |
|----------------|---|-------|----------|
| Calibrated by: | Larry Smith   | DATE: | 11/22/93 |
| Signature:     |  |       |          |

Comments:



**IH & S Form # 204**  
**Forest Hills Site**

**FLOOR MONITOR**  
**CALIBRATION**

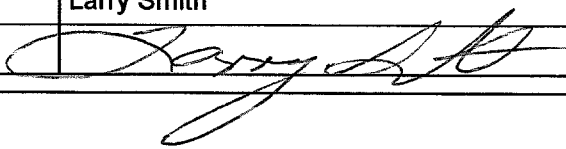
|                                |                              |                                |                         |                             |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|
| LUDLUM MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 /21 |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|

| PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE) |       |      |      |                            |      |      |       |       |
|---|-------|------|------|----------------------------|------|------|-------|-------|
| HV  | ALPHA | BETA | HV   | ALPHA                      | BETA | HV   | ALPHA | BETA  |
| 900   | 0     | ---  | 1250 | 5364                       | 26   | 1600 | 6110  | 3244  |
| 950   | 0     | ---  | 1300 | 5663                       | 17   | 1650 | 6479  | 4468  |
| 1000  | 2     | ---  | 1350 | 5661                       | 23   | 1700 | 6821  | 5819  |
| 1050  | 729   | ---  | 1400 | 5612                       | 22   | 1750 | 7163  | 6593  |
| 1100  | 3629  | ---  | 1450 | 5716                       | 254  | 1800 | 7210  | 6834  |
| 1150  | 4633  | ---  | 1500 | 5914                       | 991  | 1850 | 7396  | 6770  |
| 1200  | 4996  | 17   | 1550 | 6150                       | 2115 | 1900 | 67146 | 52770 |
| OPTIMUM ALPHA HIGH VOLTAGE:                                       |       |      | 1300 | OPTIMUM BETA HIGH VOLTAGE: |      |      | 1800  |       |

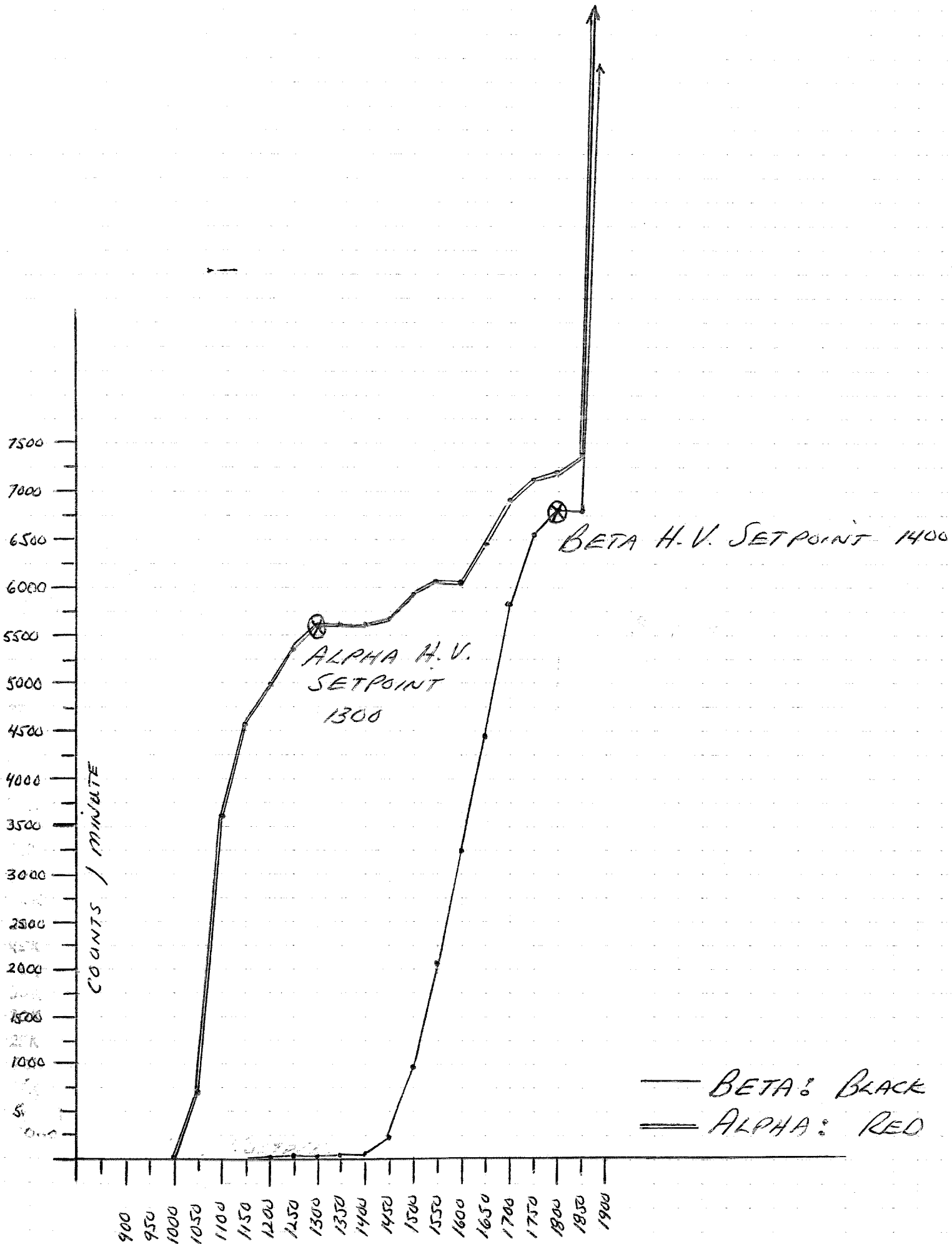
| BACKGROUND DATA |            |              |              |            |              |
|-----------------|------------|--------------|--------------|------------|--------------|
| ALPHA           |            |              | BETA         |            |              |
| TOTAL COUNTS    | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| 65              | 5 MIN      | 1300         | 5915         | 5 MIN      | 1183         |

| EFFICIENCY DATA |          |              |                   |              |            |           |         |            |              |
|-----------------|----------|--------------|-------------------|--------------|------------|-----------|---------|------------|--------------|
|                 | SOURCE # | ACTIVITY DPM | DETECTOR DISTANCE | TOTAL COUNTS | COUNT TIME | GROSS CPM | NET CPM | EFFICIENCY | CORR. FACTOR |
| ALPHA           | 7346     | 231000       | 1/4 "             | 254156       | 5 MIN      | 50831     | 50818   | 22%        | 4.5          |
| BETA            | 764/84   | 146000       | 1/2 "             | 228523       | 5 MIN      | 45704     | 44521   | 30.5%      | 3.28         |

| GAS DECAY CALIBRATION |        |        |        | ALPHA RELEASE CRITERIA  |      |              |                    | BETA RELEASE CRITERIA  |              |  |  |
|-----------------------|--------|--------|--------|---|------|--------------|--------------------|--|--------------|--|--|
| TIME                  | COUNTS | TIME   | COUNTS | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2<br>Efficiency (decimal Equivalent) = .22 |      |              |                    | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2<br>Efficiency (decimal Equivalent) = .305 |              |  |  |
| INITIAL               | 6692   | 3 HOUR | 6733   | 5000 dpm X .22 =  | 1100 | cpm          | 5000 dpm X .305 =  | 1525   | cpm          |  |  |
| 1 HOUR                | 6872   | 4 HOUR | 6870   | 1100 cpm X 4.34 =   | 4774 | cpm          | 1525 cpm X 4.34 =  | 6619   | cpm          |  |  |
| 2 HOUR                | 6877   | 5 HOUR | 6793   | 4774 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)  |      |              |                    | 6619 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)   |              |  |  |
|                       |        |        |        | I.E. Display cpm X  | .95  | = dpm/100cm2 | I.E. Display cpm X | 1.32   | = dpm/100cm2 |  |  |

|                |   |       |         |
|----------------|---|-------|---------|
| Calibrated by: | Larry Smith   | DATE: | 8/24/93 |
| Signature:     |  |       |         |

Comments: Although the gas decay calibration is done, instrument uses an onboard P-10 gas continuous flow.





**IH & S Form # 204**  
**Forest Hills Site**

**FLOOR MONITOR**  
**CALIBRATION**

|                                |                              |                                |                         |                             |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|
| LUDLUM MONITOR<br>MODEL 239-1F | DETECTOR MODEL<br>43-37 (GP) | SCALER RATEMETER<br>MODEL 2221 | SERIAL NUMBER:<br>91943 | INSTRUMENT CODES:<br>20 /21 |
|--------------------------------|------------------------------|--------------------------------|-------------------------|-----------------------------|

**PLATEAU DATA (ALPHA AND BETA COLUMNS DENOTES COUNTS FOR 1 MINUTE)**

| HV   | ALPHA | BETA | HV   | ALPHA | BETA  | HV   | ALPHA | BETA  |
|------|-------|------|------|-------|-------|------|-------|-------|
| 900  | 0     | ---  | 1250 | 41361 | 11    | 1600 | ---   | 19734 |
| 950  | 0     | ---  | 1300 | 42214 | 13    | 1650 | ---   | 27083 |
| 1000 | 1     | ---  | 1350 | 43326 | 16    | 1700 | ---   | 35583 |
| 1050 | 1034  | ---  | 1400 | 43359 | 17    | 1750 | ---   | 41603 |
| 1100 | 27485 | ---  | 1450 | 43845 | 747   | 1800 | ---   | 43123 |
| 1150 | 35712 | ---  | 1500 | 44525 | 4639  | 1850 | ---   | 43544 |
| 1200 | 39371 | ---  | 1550 | ---   | 11444 | 1900 | ---   | 43776 |

|                                    |             |                                   |             |
|------------------------------------|-------------|-----------------------------------|-------------|
| <b>OPTIMUM ALPHA HIGH VOLTAGE:</b> | <b>1300</b> | <b>OPTIMUM BETA HIGH VOLTAGE:</b> | <b>1825</b> |
|------------------------------------|-------------|-----------------------------------|-------------|

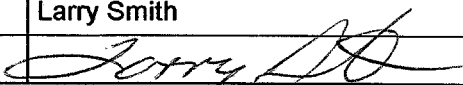
**BACKGROUND DATA**

| ALPHA        |            |              | BETA         |            |              |
|--------------|------------|--------------|--------------|------------|--------------|
| TOTAL COUNTS | COUNT TIME | COUNTS / MIN | TOTAL COUNTS | COUNT TIME | COUNTS / MIN |
| 10           | 5          | 2            | 6715         | 5          | 1343         |

**EFFICIENCY DATA**

|       | SOURCE # | ACTIVITY<br>DPM | DETECTOR<br>DISTANCE | TOTAL<br>COUNTS | COUNT<br>TIME | GROSS<br>CPM | NET CPM | EFFICIENCY | CORR.<br>FACTOR |
|-------|----------|-----------------|----------------------|-----------------|---------------|--------------|---------|------------|-----------------|
| ALPHA | 7346     | 231000          | 1/4"                 | 207610          | 5 MIN         | 41522        | 41520   | 18%        | 5.56            |
| BETA  | 764/84   | 146000          | 1/2"                 | 218330          | 5 MIN         | 43666        | 42323   | 29%        | 3.45            |

| <b>GAS DECAY CALIBRATION</b> |        |        |        | <b>ALPHA RELEASE CRITERIA</b>   |  |  | <b>BETA RELEASE CRITERIA</b>  |  |  |
|------------------------------|--------|--------|--------|---|--|--|---|--|--|
| TIME                         | COUNTS | TIME   | COUNTS | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2<br>Efficiency (decimal Equivalent) = .18 |  |  | 15000 dpm/100 cm2 Maximum<br>5000 dpm/100 cm2 Average<br>Window effective area = 434 cm2<br>Efficiency (decimal Equivalent) = .29 |  |  |
| INITIAL                      | NA     | 3 HOUR | NA     | 5000 dpm X .18 = 900 cpm  |  |  | 5000 dpm X .29 = 1450 cpm   |  |  |
| 1 HOUR                       | NA     | 4 HOUR | NA     | 900 cpm X 4.34 = 3906 cpm   |  |  | 1450 cpm X 4.34 = 6293 cpm  |  |  |
| 2 HOUR                       | NA     | 5 HOUR | NA     | 3906 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)  |  |  | 6293 Averages to 5000 dpm/100cm2<br>Total detector. (display cpm / 5000)  |  |  |
|                              |        |        |        | I.E. Display cpm X .78 = dpm/100cm2   |  |  | I.E. Display cpm X 1.26 = dpm/100cm2  |  |  |

|                       |   |              |         |
|-----------------------|---|--------------|---------|
| <b>Calibrated by:</b> | Larry Smith   | <b>DATE:</b> | 5/26/93 |
| <b>Signature:</b>     |  |              |         |

**Comments:**  
 Gas decay calibration not required due to instrument using an on board P-10 continuous gas flow.

\*\*\*\*\*  
\* FLOOR MONITOR \*  
\* CALIBRATION \*  
\*\*\*\*\*

|                              |                           |                             |                      |
|------------------------------|---------------------------|-----------------------------|----------------------|
| LUDDLUM MONITOR MODEL 239-1F | DETECTOR MODEL 43-37 (GP) | SCALER/RATEMETER MODEL 2221 | SERIAL NUMBER: 91943 |
|------------------------------|---------------------------|-----------------------------|----------------------|

| PLATEAU DATA |        |      |      |       |       |      |       |       |      |       |        |      |       |      |
|--------------|--------|------|------|-------|-------|------|-------|-------|------|-------|--------|------|-------|------|
| HV           | ALPHA  | BETA | HV   | ALPHA | BETA  | HV   | ALPHA | BETA  | HV   | ALPHA | BETA   | HV   | ALPHA | BETA |
| 900          | 0      | -    | 1250 | 41361 | 11    | 1600 | -     | 19734 | 1950 | -     | 178991 | 2300 | -     | -    |
| 950          | 0      | -    | 1300 | 42214 | 13    | 1650 | -     | 27083 | 2000 | -     | -      | 2350 | -     | -    |
| 1000         | 1      | -    | 1350 | 43326 | 16    | 1700 | -     | 35583 | 2050 | -     | -      | 2400 | -     | -    |
| 1050         | 10.34  | -    | 1400 | 43359 | 17    | 1750 | -     | 41603 | 2100 | -     | -      | 2450 | -     | -    |
| 1100         | 27,485 | -    | 1450 | 43845 | 747   | 1800 | -     | 43123 | 2150 | -     | -      | 2500 | -     | -    |
| 1150         | 35,712 | -    | 1500 | 44525 | 4639  | 1850 | -     | 43544 | 2200 | -     | -      |      | -     | -    |
| 1200         | 39371  | 10   | 1550 | -     | 11444 | 1900 | -     | 43776 | 2250 | -     | -      |      | -     | -    |

ALPHA PLATEAU VOLTAGE: 1300 VOLTS      BETA PLATEAU VOLTAGE: 1825 VOLTS

20  
22  
22  
22

| WINDOW CALIBRATION                                  |         |  |                                 |
|---|---------|--|---------------------------------|
| Tc-99 SOURCE  | HV = 50 | THR = 100                              | WIN = 20                        |
| ADJ. HV UNTIL METER REACTS (LOG) (WIN OUT) = 1630   |         |  |                                 |
| ADJ. HV UNTIL METER REACTS (ANSLOG) (WIN IN) = 1630 |         |  |                                 |
| AVERAGE HV ANALOG/ENERGY = 1630                     |         |  |                                 |
| TOTAL AVERAGE HV ENERGY/PLATEAU = 1520              |         |  |                                 |
| OVERLOAD CALIBRATION                                |         |  |                                 |
| ADJ. OL AFTER TUBE SATURATION:                      |         | <input checked="" type="checkbox"/> OK | <input type="checkbox"/> NOT OK |

| GAS DECAY CALIBRATION                  |        |         |        |
|--|--------|---------|--------|
| TIME                                   | COUNTS | TIME    | COUNTS |
|  |        |         |        |
|  |        |         |        |
|  |        |         |        |
|  |        |         |        |
|  |        |         |        |
|  |        |         |        |
|  |        |         |        |
|  |        |         |        |
|  |        |         |        |
| MAXIMUM SCAN TIME BEFORE GAS RECHARGE: |        | MINUTES |        |

| ALPHA EFFICIENCY       |           | ALPHA BKG: 2 CPM      |            |      |
|------------------------|-----------|-----------------------|------------|------|
| SOURCE: # 7346(Pu 239) |           | ACTIVITY: 231,100 DPM |            |      |
| DETECTOR               | GROSS CTS | CPM                   | EFFICIENCY | C.F. |
| @ 1/4"                 | 41522     | 41520                 | 18%        | 5.56 |
|                        |           |                       |            |      |
|                        |           |                       |            |      |
|                        |           |                       |            |      |

| BETA EFFICIENCY       |           | BETA BKG: 1343 CPM    |            |      |
|-----------------------|-----------|-----------------------|------------|------|
| SOURCE: 1761/34 Tc 99 |           | ACTIVITY: 146,000 DPM |            |      |
| DETECTOR              | GROSS CTS | CPM                   | EFFICIENCY | C.F. |
| @ 1/2"                | 43666     | 42323                 | 29.0       | 3.45 |
|                       |           |                       |            |      |
|                       |           |                       |            |      |
|                       |           |                       |            |      |

ALPHA CALCULATIONS

ALPHA RELEASE CRITERIA  
(15,000 DPM/100 cm<sup>2</sup> MAX) (5,000 DPM/100 cm<sup>2</sup> MIN)

WIN EFFECTIVE AREA: 434 cm<sup>2</sup>  
 WIN EFFICIENCY @ 1/4": 18 %  
 5000 DPM x .18 = 900 CPM  
 900 CPM x 4.34 = 3906 CPM

3906 CPM AVGS TO 5000 DPM/100 cm<sup>2</sup> TOT. DET.

THEREFORE: DISPLAY CPM x .78 = DPM/100 cm<sup>2</sup>

BETA CALCULATIONS

BETA RELEASE CRITERIA  
(15,000 DPM/100 cm<sup>2</sup> MAX) (5,000 DPM/100 cm<sup>2</sup> MIN)

WIN EFF AREA: 434 cm<sup>2</sup>  
 WIN EFFICIENCY @ 1/2": 29 %  
 5000 DPM x .29 = 1450 CPM  
 1450 CPM x 4.34 = 6293 CPM

6293 CPM AVGS. TO 5000 DPM/100 cm<sup>2</sup> TOT DET

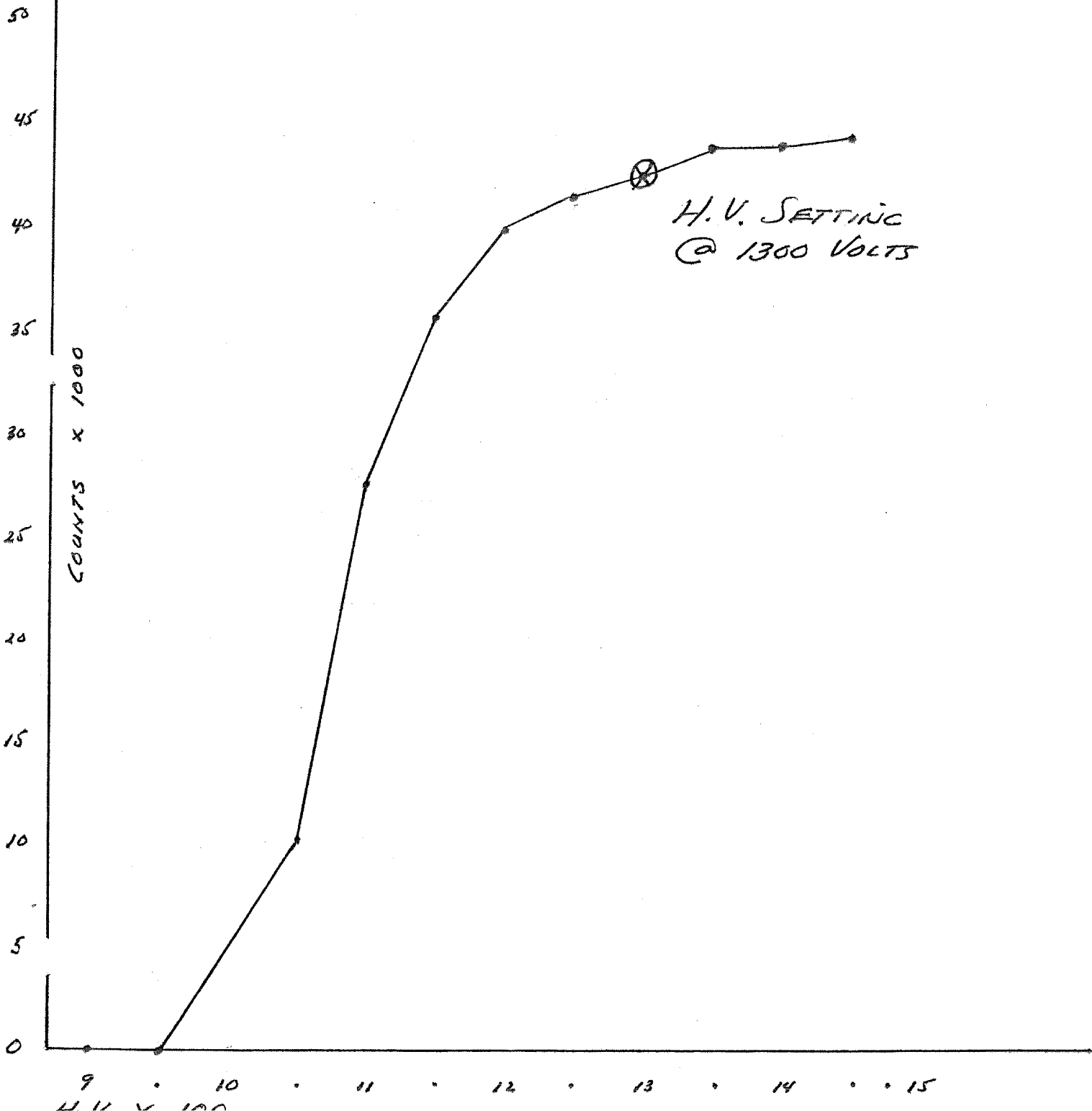
THEREFORE: DISPLAY CPM x 1.26 = DPM/100 cm<sup>2</sup>

NAME AND DATE: LARRY SMITH      Jerry Smith      5-16-93

ALPHA PLATEAU

DATE: 5/26/93

BY: L. Smith  
A. Smith



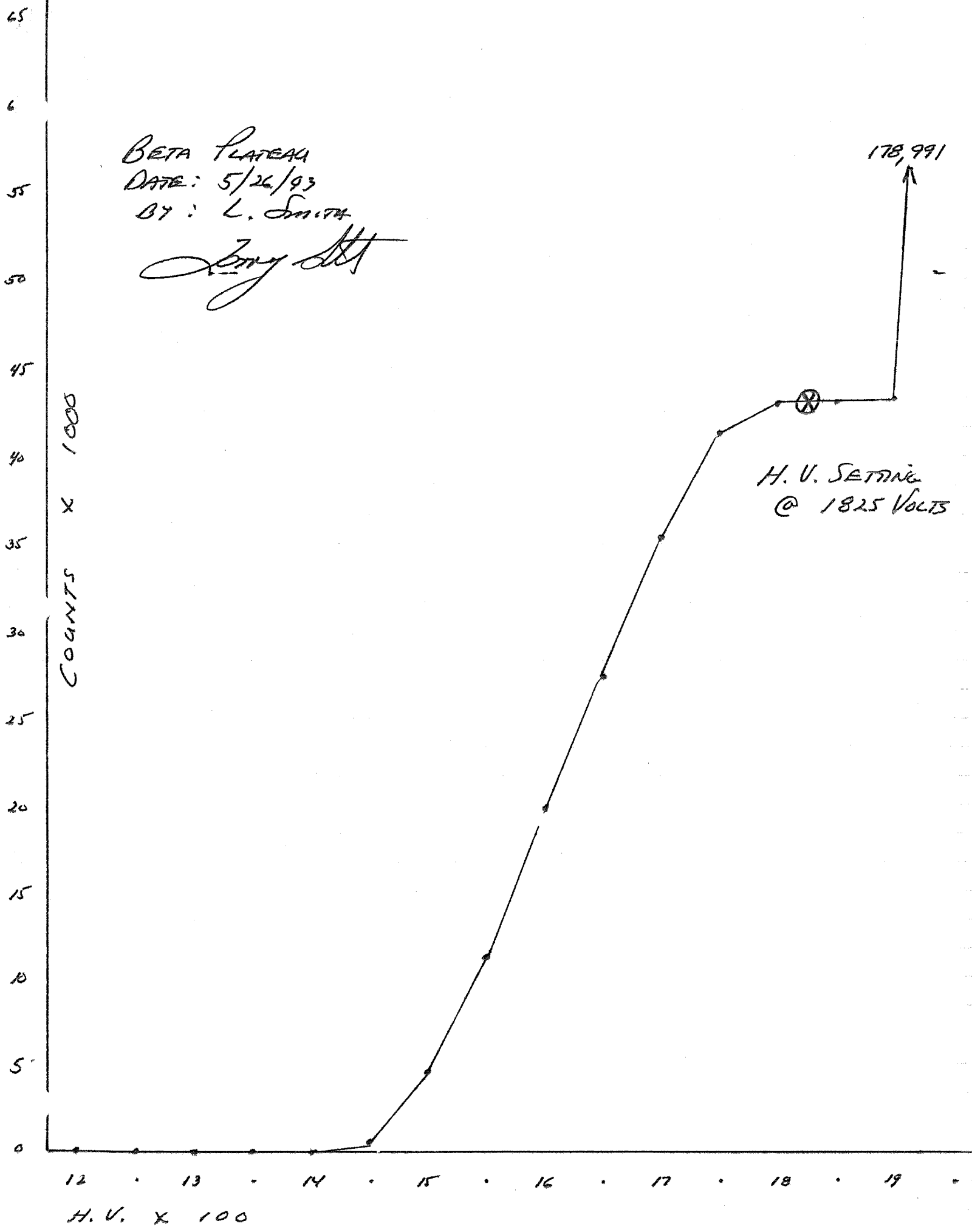
H.V. SETTING  
@ 1300 VOLTS

BETA PLATEAU

DATE: 5/26/93

BY: L. SMITH

*L. Smith*



**CODE NUMBER 22**

**REPORT #001**



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 724/733-1900 Fax: 724/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |   |
|----------------------|---|-------------------------|---|
| Customer Name:       | <u>Westinghouse</u>                               | Instrument Manufacturer | <u>Eberline</u>   |
| Customer Address:    | <u>PO Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>ESP-2</u> Serial Number <u>1522</u>                            |
| Customer P.O.#       | <u>MB-14027-S</u>                                 | External Probe(s)       | <u>HP270</u> Serial # <u>#1</u>                                   |
| Work Order #         | <u>I-98-10-208</u>                                | Calibration Method      | <u>137</u> <u>Pulser s/n 101500</u><br><u>Cs s/n 10263 200mCi</u> |

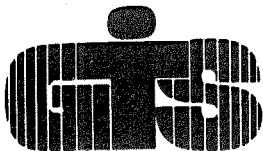
## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |                 | Comment                         |
|----|------------------|----------------------------|---------------------|-----------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib.    |                                 |
| 1  | N/A              | 1 mR/hr                    | 1.02 + 00 mR/hr     | 1.02 + 00 mR/hr | All Calibrations Btn. + & - 10% |
| 2  |                  | 10                         | 1.01 + 01           | 1.01 + 01       | Battery; OK                     |
| 3  |                  | 150                        | 1.42 + 02           | 1.42 + 02       | Reset: OK                       |
| 4  |                  | 250                        | 2.42 + 02           | 2.42 + 02       | Light: OK                       |
| 5  |                  | 750                        | 7.10 + 02           | 7.10 + 02       | Speaker: OK                     |
| 6  |                  | 1,500                      | 1.41 + 03           | 1.41 + 03       | High Voltage = 906 Volts        |
| 7  |                  |                            |                     |                 | DT = 1.25 - 04                  |
| 8  |                  |                            |                     |                 | CC = 7.32 + 07                  |
| 9  |                  |                            |                     |                 |                                 |
| 10 |                  |                            |                     |                 |                                 |
| 11 |                  |                            |                     |                 |                                 |
| 12 |                  |                            |                     |                 |                                 |
| 13 |                  |                            |                     |                 |                                 |
| 14 |                  |                            |                     |                 |                                 |
| 15 |                  |                            |                     |                 |                                 |
| 16 |                  |                            |                     |                 |                                 |
| 17 |                  |                            |                     |                 |                                 |
| 18 |                  |                            |                     |                 |                                 |
| 19 |                  |                            |                     |                 |                                 |
| 20 |                  |                            |                     |                 |                                 |
| 21 |                  |                            |                     |                 |                                 |
| 22 |                  |                            |                     |                 |                                 |
| 23 |                  |                            |                     |                 |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: [Signature] I certify that the above information is correct:  
 Calibration Date: 10-29-98 (Signed) [Signature] 10-29-98  
 Next Calibration Due: 01-29-99 Administrative Coordinator Date



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 724/733-1900 Fax: 724/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION  | INSTRUMENT INFORMATION   |
|---|--|
| Customer Name: <u>Westinghouse</u>                                  | Instrument Manufacturer <u>Eberline</u>  |
| Customer Address: <u>PO Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model <u>ESP-2</u> Serial Number <u>1522</u>   |
| Customer P.O.# <u>MB-14027-S</u>                                    | External Probe(s) <u>HP270</u> Serial # _____  |
| Work Order # <u>I-98-06-209</u>                                     | Calibration Method <u>137</u> <u>Pulser s/n 101500</u><br><u>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |                 | Comment                        |
|----|------------------|----------------------------|---------------------|-----------------|--------------------------------|
|    |                  |                            | Before Calib.       | After Calib.    |                                |
| 1  | N/A              | 1 mR/hr                    | 1.04 + 00 mR/hr     | 1.04 + 00 mR/hr | All Calibrations Btn. + & - 10 |
| 2  |                  | 10                         | 1.01 + 01           | 1.01 + 01       | Battery: OK                    |
| 3  |                  | 150                        | 1.45 + 02           | 1.45 + 02       | Reset: OK                      |
| 4  |                  | 250                        | 2.46 + 02           | 2.46 + 02       | Light: OK                      |
| 5  |                  | 750                        | 6.34 + 02           | 7.34 + 02       | Speaker: OK                    |
| 6  |                  | 1,500                      | 1.47 + 03           | 1.47 + 03       | High Voltage = 905 Volts       |
| 7  |                  |                            |                     |                 | DT = 1.25 - 04                 |
| 8  |                  |                            |                     |                 | CC = 7.32 + 07                 |
| 9  |                  |                            |                     |                 |                                |
| 10 |                  |                            |                     |                 |                                |
| 11 |                  |                            |                     |                 |                                |
| 12 |                  |                            |                     |                 |                                |
| 13 |                  |                            |                     |                 |                                |
| 14 |                  |                            |                     |                 |                                |
| 15 |                  |                            |                     |                 |                                |
| 16 |                  |                            |                     |                 |                                |
| 17 |                  |                            |                     |                 |                                |
| 18 |                  |                            |                     |                 |                                |
| 19 |                  |                            |                     |                 |                                |
| 20 |                  |                            |                     |                 |                                |
| 21 |                  |                            |                     |                 |                                |
| 22 |                  |                            |                     |                 |                                |
| 23 |                  |                            |                     |                 |                                |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |   |
|--|---|
| Instrument Calibrated by: <u>[Signature]</u><br>Calibration Date: <u>06-10-98</u><br>Next Calibration Due: <u>09-10-98</u> | I certify that the above information is correct:<br><u>[Signature]</u><br>Administrative Coordinator<br>Date: <u>06-10-98</u> |
|--|---|



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 724/733-1900 Fax: 724/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                 |   | INSTRUMENT INFORMATION     |                           |
|--------------------------------------|---|----------------------------|---------------------------|
| Customer Name: <u>Westinghouse</u>   | Instrument Manufacturer <u>Eberline</u> | Model <u>ESP-2</u>         | Serial Number <u>1522</u> |
| Customer Address: <u>PO Box 3700</u> | External Probe(s) <u>HP270</u>          | Serial # <u>#1</u>         |                           |
| <u>Pittsburgh, PA 15230</u>          |   |                            |                           |
| Customer P.O.# <u>MB-14027-S</u>     | Calibration Method <u>137</u>           | <u>Pulser s/n 101500</u>   |                           |
| Work Order # <u>I-98-02-208</u>      |   | <u>Cs s/n 10263 200mCi</u> |                           |

## INSTRUMENT CALIBRATION INFORMATION

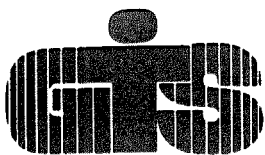
| Instrument Range | Calibration Standard Value | Instrument Response    |                        | Comment                                    |
|------------------|----------------------------|------------------------|------------------------|--|
|                  |                            | Before Calib.          | After Calib.           |  |
| 1 <u>N/A</u>     | <u>1 mR/hr</u>             | <u>1.00 + 00 mR/hr</u> | <u>1.00 + 00 mR/hr</u> | <u>All Calibrations Btn. + &amp; - 10%</u> |
| 2                | <u>10</u>                  | <u>1.02 + 01</u>       | <u>1.02 + 01</u>       | <u>Battery: OK</u>                         |
| 3                | <u>50</u>                  | <u>4.93 + 01</u>       | <u>4.93 + 01</u>       | <u>Reset: OK</u>                           |
| 4                | <u>150</u>                 | <u>1.44 + 02</u>       | <u>1.44 + 02</u>       | <u>Light: OK</u>                           |
| 5                | <u>250</u>                 | <u>2.41 + 02</u>       | <u>2.41 + 02</u>       | <u>Speaker: OK</u>                         |
| 6                | <u>750</u>                 | <u>7.12 + 02</u>       | <u>7.12 + 02</u>       | <u>High Voltage = 905 Volts</u>            |
| 7                | <u>1,500</u>               | <u>1.44 + 03</u>       | <u>1.44 + 03</u>       | <u>DT = 1.25 - 04</u>                      |
| 8                |                            |                        |                        | <u>CC = 7.32 + 07</u>                      |
| 9                |                            |                        |                        |  |
| 10               |                            |                        |                        |  |
| 11               |                            |                        |                        |  |
| 12               |                            |                        |                        |  |
| 13               |                            |                        |                        |  |
| 14               |                            |                        |                        |  |
| 15               |                            |                        |                        |  |
| 16               |                            |                        |                        |  |
| 17               |                            |                        |                        |  |
| 18               |                            |                        |                        |  |
| 19               |                            |                        |                        |  |
| 20               |                            |                        |                        |  |
| 21               |                            |                        |                        |  |
| 22               |                            |                        |                        |  |
| 23               |                            |                        |                        |  |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u> | I certify that the above information is correct: |
| Calibration Date: <u>02-13-98</u>            | <u>[Signature]</u> 02-13-98                      |
| Next Calibration Due: <u>05-13-98</u>        | Administrative Coordinator Date                  |





**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                 | INSTRUMENT INFORMATION                                 |
|--------------------------------------|--|
| Customer Name: <u>Westinghouse</u>   | Instrument Manufacturer <u>Eberline</u>                |
| Customer Address: <u>PO Box 3700</u> | Model <u>ESP-2</u> Serial Number <u>1522</u>           |
| <u>Pittsburgh, PA 15230</u>          | External Probe(s) <u>HP270</u> Serial # _____          |
| Customer P.O.# <u>MB-14027-S</u>     | Calibration Method <u>137</u> <u>Pulser s/n 101500</u> |
| Work Order # <u>I-97-10-209</u>      | <u>Cs s/n 10263 200mCi</u>                             |

### INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |                 | Comment                         |
|------------------|----------------------------|---------------------|-----------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib.    |                                 |
| 1 DIGITAL RATE   | 1 mR/hr                    | 1.06 + 00mR/hr      | 1.01 + 00 mR/hr | All Calibrations Btn. + & - 10% |
| 2                | 10                         | 1.13 + 01           | 1.04 + 01       | Battery: OK                     |
| 3                | 150                        | 1.63 + 02           | 1.44 + 02       | Reset: OK                       |
| 4                | 250                        | 2.69 + 02           | 2.43 + 02       | Light: OK                       |
| 5                | 750                        | 7.89 + 02           | 7.29 + 02       | High Voltage = 905 Volts        |
| 6                | 1,500                      | 1.54 + 03           | 1.40 + 03       | Speaker: OK                     |
| 7                |                            |                     |                 | DT = 1.25 - 04                  |
| 8                |                            |                     |                 | CC = 7.32 + 07                  |
| 9                |                            |                     |                 |                                 |
| 10               |                            |                     |                 |                                 |
| 11               |                            |                     |                 |                                 |
| 12               |                            |                     |                 |                                 |
| 13               |                            |                     |                 |                                 |
| 14               |                            |                     |                 |                                 |
| 15               |                            |                     |                 |                                 |
| 16               |                            |                     |                 |                                 |
| 17               |                            |                     |                 |                                 |
| 18               |                            |                     |                 |                                 |
| 19               |                            |                     |                 |                                 |
| 20               |                            |                     |                 |                                 |
| 21               |                            |                     |                 |                                 |
| 22               |                            |                     |                 |                                 |
| 23               |                            |                     |                 |                                 |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|   |   |
|---|---|
| Instrument Calibrated by: <u>[Signature]</u><br><small>(Signed)</small><br>Calibration Date: <u>11-03-97</u><br>Next Calibration Due: <u>02-03-98</u> | I certify that the above information is correct:<br><u>[Signature]</u> <u>11-03-97</u><br>Administrative Coordinator Date |
|---|---|



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |                                       | INSTRUMENT INFORMATION  |                                    |
|----------------------|---------------------------------------|-------------------------|------------------------------------|
| Customer Name:       | Westinghouse                          | Instrument Manufacturer | Eberline                           |
| Customer Address:    | P.O. Box 3700<br>Pittsburgh, PA 15230 | Model                   | ESP                                |
|                      |                                       | Serial Number           | 01522                              |
|                      |                                       | External Probe(s)       | HP270 Serial # #1                  |
| Customer P.O.#       | MB-14027-S                            | Calibration Method      | <sup>137</sup> Cs s/n 10263 200mCi |
| Work Order #         | I-97-06-209                           |                         |                                    |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |                 | Comment                         |
|----|------------------|----------------------------|---------------------|-----------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib.    |                                 |
| 1  | N/A              | 1 mR/hr                    | 1.03 + 00 mR/hr     | 1.03 + 00 mR/hr | All Calibrations Btn. + & - 10% |
| 2  |                  | 10                         | 1.04 + 01           | 1.04 + 01       | Battery: OK                     |
| 3  |                  | 150                        | 1.52 + 02           | 1.52 + 02       | DT = 1.25 - 04                  |
| 4  |                  | 250                        | 2.56 + 02           | 2.56 + 02       | CC = 6.45 + 07                  |
| 5  |                  | 750                        | 7.68 + 02           | 7.68 + 02       | High Voltage = 900 Volts        |
| 6  |                  | 1,500                      | 1.50 + 03           | 1.50 + 03       | Speaker: OK                     |
| 7  |                  |                            |                     |                 | Reset: OK                       |
| 8  |                  |                            |                     |                 | Units = mR/hr                   |
| 9  |                  |                            |                     |                 | Alarm @ 1.00 + 06               |
| 10 |                  |                            |                     |                 |                                 |
| 11 |                  |                            |                     |                 |                                 |
| 12 |                  |                            |                     |                 |                                 |
| 13 |                  |                            |                     |                 |                                 |
| 14 |                  |                            |                     |                 |                                 |
| 15 |                  |                            |                     |                 |                                 |
| 16 |                  |                            |                     |                 |                                 |
| 17 |                  |                            |                     |                 |                                 |
| 18 |                  |                            |                     |                 |                                 |
| 19 |                  |                            |                     |                 |                                 |
| 20 |                  |                            |                     |                 |                                 |
| 21 |                  |                            |                     |                 |                                 |
| 22 |                  |                            |                     |                 |                                 |
| 23 |                  |                            |                     |                 |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|   |  |
|---|--|
| Instrument Calibrated by: <u>William Owen</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>07-01-97</u>                         | <u>William Owen</u> 07-01-97                     |
| Next Calibration Due: <u>10-01-97</u>                     | Administrative Coordinator Date                  |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   | INSTRUMENT INFORMATION                               |
|--|--|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer <u>Eberline</u>              |
| Customer Address: <u>P.O. Box 3700</u> | Model <u>ESP-2</u> Serial Number <u>01522</u>        |
| <u>Pittsburgh, PA 15230</u>            | External Probe(s) <u>HP270</u> Serial # <u>1</u>     |
| Customer P.O.# <u>MB-14027-S</u>       | Calibration Method <u><sup>137</sup>Cs s/n 10263</u> |
| Work Order # <u>I-97-03-209</u>        |  |

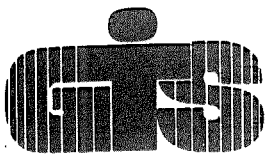
## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response   |                       | Comment                                    |
|------------------|----------------------------|-----------------------|-----------------------|--|
|                  |                            | Before Calib.         | After Calib.          |  |
| 1 <u>N/A</u>     | <u>1 mR/hr</u>             | <u>1.04 + 00mR/hr</u> | <u>1.04 + 00mR/hr</u> | <u>All Calibrations Btn. + &amp; - 10%</u> |
| 2                |                            |                       |                       |  |
| 3                | <u>10</u>                  | <u>1.07 + 01</u>      | <u>1.07 + 01</u>      | <u>Battery: OK</u>                         |
| 4                |                            |                       |                       |  |
| 5                | <u>150</u>                 | <u>1.57 + 02</u>      | <u>1.57 + 02</u>      | <u>Reset: OK</u>                           |
| 6                |                            |                       |                       |  |
| 7                | <u>250</u>                 | <u>2.68 + 02</u>      | <u>2.68 + 02</u>      | <u>Light: OK</u>                           |
| 8                |                            |                       |                       |  |
| 9                | <u>750</u>                 | <u>8.01 + 02</u>      | <u>8.01 + 02</u>      | <u>Speaker: OK</u>                         |
| 10               |                            |                       |                       |  |
| 11               | <u>1,500</u>               | <u>1.57 + 03</u>      | <u>1.57 + 03</u>      | <u>DT = 1.25 - 04</u>                      |
| 12               |                            |                       |                       |  |
| 13               |                            |                       |                       | <u>CC = 6.45 + 07</u>                      |
| 14               |                            |                       |                       |  |
| 15               |                            |                       |                       | <u>HV = 9.05 + 02</u>                      |
| 16               |                            |                       |                       |  |
| 17               |                            |                       |                       |  |
| 18               |                            |                       |                       |  |
| 19               |                            |                       |                       |  |
| 20               |                            |                       |                       |  |
| 21               |                            |                       |                       |  |
| 22               |                            |                       |                       |  |
| 23               |                            |                       |                       |  |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|   |  |
|---|--|
| Instrument Calibrated by: <u>James Christie</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>04-01-97</u>                           | <u>Tim Lawton</u> <u>04-01-97</u>                |
| Next Calibration Due: <u>07-01-97</u>                       | Administrative Coordinator Date                  |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   | INSTRUMENT INFORMATION                                    |
|--|---|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer <u>Eberline</u>                   |
| Customer Address: <u>P.O. Box 3700</u> | Model <u>ESP-2</u> Serial Number <u>1522</u>              |
| <u>Pittsburgh, PA 15230</u>            | External Probe(s) <u>HP270</u> Serial # <u>#1</u>         |
| Customer P.O.# <u>MB-14027-S</u>       | Calibration Method <u><sup>137</sup>Pulser s/n 101500</u> |
| Work Order # <u>I-96-12-210</u>        | <u>Cs s/n 10263 200mCi</u>                                |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |                 | Comment                         |
|----|------------------|----------------------------|---------------------|-----------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib.    |                                 |
| 1  | N/A              | 1 mR/hr                    | 1.04 + 00 mR/hr     | 1.04 + 00 mR/hr | All Calibrations Btn. + & - 10% |
| 2  |                  |                            |                     |                 |                                 |
| 3  |                  | 10                         | 1.05 + 01           | 1.05 + 01       | Battery: OK                     |
| 4  |                  |                            |                     |                 |                                 |
| 5  |                  | 150                        | 1.55 + 02           | 1.55 + 02       | Mechanical Zero: OK             |
| 6  |                  |                            |                     |                 |                                 |
| 7  |                  | 250                        | 2.55 + 02           | 2.55 + 02       | Light: OK                       |
| 8  |                  |                            |                     |                 |                                 |
| 9  |                  | 750                        | 7.78 + 02           | 7.78 + 02       | Speaker: OK                     |
| 10 |                  |                            |                     |                 |                                 |
| 11 |                  | 1,500                      | 1.53 + 03           | 1.53 + 03       | DT = 1.25 - 04                  |
| 12 |                  |                            |                     |                 |                                 |
| 13 |                  |                            |                     |                 | CC = 6.45 + 07                  |
| 14 |                  |                            |                     |                 |                                 |
| 15 |                  |                            |                     |                 | High Voltage = 905 Volts        |
| 16 |                  |                            |                     |                 |                                 |
| 17 |                  |                            |                     |                 |                                 |
| 18 |                  |                            |                     |                 |                                 |
| 19 |                  |                            |                     |                 |                                 |
| 20 |                  |                            |                     |                 |                                 |
| 21 |                  |                            |                     |                 |                                 |
| 22 |                  |                            |                     |                 |                                 |
| 23 |                  |                            |                     |                 |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct:<br><u>[Signature]</u> |
| Calibration Date: <u>12-30-96</u>                        | <u>12-30-96</u>  |
| Next Calibration Due: <u>03-30-97</u>                    | Administrative Coordinator <u>[Signature]</u> Date                     |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |                             | INSTRUMENT INFORMATION  |  |
|----------------------|-----------------------------|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>         | Instrument Manufacturer | <u>Eberline</u>                          |
| Customer Address:    | <u>P.O. Box 3700</u>        | Model                   | <u>PRM-7</u> Serial Number <u>234</u>    |
|                      | <u>Pittsburgh, PA 15230</u> | External Probe(s)       | Serial # _____                           |
| Customer P.O.#       | <u>MB-14027-S</u>           | Calibration Method      | <u><sup>137</sup>Cs s/n 10263 200mCi</u> |
| Work Order #         | <u>I-96-10-209</u>          |                         | <u>Pulser s/n 101500</u>                 |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 25             | 1.90K CPM                  | 10 uR/hr            | 10 uR/hr     | All Calibrations Btn. + & - 10% |
| 2                | 3.80K                      | 20.5                | 20.5         | Battery: OK                     |
| 3                |                            |                     |              |                                 |
| 4 50             | 1.90K                      | 10                  | 10           | Mechanical Zero: OK             |
| 5                | 7.60K                      | 40.5                | 40.5         |                                 |
| 6                |                            |                     |              |                                 |
| 7 500            | 0.1 mR/hr                  | 110                 | 110          | Response: OK                    |
| 8                | 0.2                        | 220                 | 220          |                                 |
| 9                | 0.4                        | 400                 | 400          | Reset: OK                       |
| 10               |                            |                     |              |                                 |
| 11 5000          | 1                          | 1,000               | 1,000        | Audio: OK                       |
| 12               | 2                          | 1,950               | 1,950        |                                 |
| 13               | 4                          | 3,800               | 3,800        | Light: Inoperable               |
| 14               |                            |                     |              |                                 |
| 15               |                            |                     |              | High Voltage = 1163 Volts       |
| 16               |                            |                     |              |                                 |
| 17               |                            |                     |              | 1000 uR/hr = 190K CPM           |
| 18               |                            |                     |              |                                 |
| 19               |                            |                     |              |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |   |
|--|---|
| Instrument Calibrated by: <u>William Owens</u><br>(Signed) | I certify that the above information is correct:<br><u>Marcia M. DeBa</u> |
| Calibration Date: <u>10-29-96</u>                          | <u>10-29-96</u><br>Date   |
| Next Calibration Due: <u>01-29-97</u>                      | Administrative Coordinator  |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   | INSTRUMENT INFORMATION                            |
|--|---|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer <u>Eberline</u>           |
| Customer Address: <u>P.O. Box 3700</u> | Model <u>ESP-2</u> Serial Number <u>1522</u>      |
| <u>Pittsburgh, PA 15230</u>            | External Probe(s) <u>HP270</u> Serial # <u>#1</u> |
| Customer P.O.# <u>MB-14027-S</u>       | Calibration Method <u>137 Cs s/n 101500</u>       |
| Work Order # <u>I-96-10-209</u>        | <u>Pulser s/n 10263 200mCi</u>                    |

### INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |                 | Comment                         |
|----|------------------|----------------------------|---------------------|-----------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib.    |                                 |
| 1  | N/A              | 1 mR                       | 1.05 + 00 mR/hr     | 1.03 + 00 mR/hr | All Calibrations Btn. + & - 10% |
| 2  |                  | 10                         | 1.06 + 01           | 1.05 + 01       | Battery: OK                     |
| 3  |                  | 150                        | 1.59 + 02           | 1.55 + 02       | Reset: OK                       |
| 4  |                  | 250                        | 2.80 + 02           | 2.59 + 02       | Light: OK                       |
| 5  |                  | 750                        | 8.32 + 02           | 7.70 + 02       | Speaker: OK                     |
| 6  |                  | 1,500                      | 1.67 + 03           | 1.50 + 03       | DT = 1.25 - 04                  |
| 7  |                  |                            |                     |                 | CC = 6.45 + 07                  |
| 8  |                  |                            |                     |                 | High Voltage = 905 Volts        |
| 9  |                  |                            |                     |                 |                                 |
| 10 |                  |                            |                     |                 |                                 |
| 11 |                  |                            |                     |                 |                                 |
| 12 |                  |                            |                     |                 |                                 |
| 13 |                  |                            |                     |                 |                                 |
| 14 |                  |                            |                     |                 |                                 |
| 15 |                  |                            |                     |                 |                                 |
| 16 |                  |                            |                     |                 |                                 |
| 17 |                  |                            |                     |                 |                                 |
| 18 |                  |                            |                     |                 |                                 |
| 19 |                  |                            |                     |                 |                                 |
| 20 |                  |                            |                     |                 |                                 |
| 21 |                  |                            |                     |                 |                                 |
| 22 |                  |                            |                     |                 |                                 |
| 23 |                  |                            |                     |                 |                                 |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct:<br><u>[Signature]</u> |
| Calibration Date: <u>10-08-96</u>                        | <u>10-08-96</u>  |
| Next Calibration Due: <u>01-08-97</u>                    | Administrative Coordinator <u>[Signature]</u> Date                     |



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 2045 Route 286  
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#22

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   |  | INSTRUMENT INFORMATION     |                            |
|--|--|----------------------------|----------------------------|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer: <u>Eberline</u>         | Model: <u>ESP-2</u>        | Serial Number: <u>1522</u> |
| Customer Address: <u>P.O. Box 3700</u> | External Probe(s): <u>HP270 #1</u>               | Serial #: _____            |                            |
| <u>Pittsburgh, PA 15221</u>            | Calibration Method: <u>137-Pulser s/n 120935</u> | <u>Cs s/n 10263 200mCi</u> |                            |
| Customer P.O.#: <u>MB-14027-S</u>      | Work Order #: <u>I-96-06-209</u>                 |                            |                            |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 N/A            | 1 mR/hr                    | 0.94 mR/hr          | 1.01 mR/hr   | All Calibrations Btn. + & - 10% |
| 2                | 10                         | 9.55                | 10.3         | Battery: OK                     |
| 3                | 150                        | 139                 | 154          | Reset: OK                       |
| 4                | 250                        | 233                 | 262          | Light: OK                       |
| 5                | 750                        | 682                 | 776          | Speaker: OK                     |
| 6                | 1,500                      | 1,330               | 1,510        | High Voltage = 905 Volts        |
| 7                |                            |                     |              | DT = 1.38 - 04                  |
| 8                |                            |                     |              | CC = 6.45 + 07                  |
| 9                |                            |                     |              |                                 |
| 10               |                            |                     |              |                                 |
| 11               |                            |                     |              |                                 |
| 12               |                            |                     |              |                                 |
| 13               |                            |                     |              |                                 |
| 14               |                            |                     |              |                                 |
| 15               |                            |                     |              |                                 |
| 16               |                            |                     |              |                                 |
| 17               |                            |                     |              |                                 |
| 18               |                            |                     |              |                                 |
| 19               |                            |                     |              |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct:<br><u>[Signature]</u> |
| Calibration Date: <u>07-01-96</u>                        | <u>07-01-96</u>  |
| Next Calibration Due: <u>10-01-96</u>                    | Administrative Coordinator Date  |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |   |
|----------------------|---|-------------------------|---|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>                                     |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>ESP-2</u> Serial Number <u>1522</u>              |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | <u>HP270</u> Serial # <u>#1</u>                     |
| Work Order #         | <u>I-96-03-210</u>                                  | Calibration Method      | <u>137</u> Pulser s/n 120935<br>Cs s/n 10263 200mCi |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | N/A              | 1 mR/hr                    | 0.981 mR/hr         | 0.981 mR/hr  | All Calibrations Btn. + & - 10% |
| 2  |                  | 10                         | 9.89                | 9.89         | Battery: OK                     |
| 3  |                  | 150                        | 141                 | 141          | Reset: OK                       |
| 4  |                  | 250                        | 241                 | 241          | Light: OK                       |
| 5  |                  | 750                        | 709                 | 709          | Speaker: OK                     |
| 6  |                  | 1,500                      | 1,400               | 1,400        | High Voltage = 904 Volts        |
| 7  |                  |                            |                     |              | DT = 1.38 - 04                  |
| 8  |                  |                            |                     |              | CC = 7.31 + 07                  |
| 9  |                  |                            |                     |              |                                 |
| 10 |                  |                            |                     |              |                                 |
| 11 |                  |                            |                     |              |                                 |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>03-11-96</u>                        | <u>[Signature]</u> 03-11-96                      |
| Next Calibration Due: <u>06-11-96</u>                    | Administrative Coordinator Date                  |





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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   | INSTRUMENT INFORMATION                              |
|--|---|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer: <u>Eberline</u>            |
| Customer Address: <u>P.O. Box 3700</u> | Model: <u>ESP-2</u> Serial Number: <u>1522</u>      |
| <u>Pittsburgh, PA 15221</u>            | External Probe(s): <u>HP270</u> Serial #: <u>#1</u> |
| Customer P.O.#: <u>MB-14027-S</u>      | Calibration Method: <u>137 Pulsar s/n 120935</u>    |
| Work Order #: <u>I-95-11-210</u>       | <u>Cs s/n 10263 200mCi</u>                          |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |                  | Comment                                |
|------------------|----------------------------|---------------------|------------------|--|
|                  |                            | Before Calib.       | After Calib.     |  |
| 1 <u>N/A</u>     | <u>1 mR/hr</u>             | <u>1.00 mR/hr</u>   | <u>1.00 mR/h</u> | <u>All Calibrations Btm. + 0 - 10%</u> |
| 2                | <u>10</u>                  | <u>10.0</u>         | <u>10.0</u>      |  |
| 3                | <u>150</u>                 | <u>142</u>          | <u>142</u>       |  |
| 4                | <u>250</u>                 | <u>243</u>          | <u>243</u>       |  |
| 5                | <u>750</u>                 | <u>725</u>          | <u>725</u>       |  |
| 8                | <u>1,500</u>               | <u>1,410</u>        | <u>1,410</u>     |  |
| 9                |                            |                     |                  |  |
| 10               |                            |                     |                  |  |
| 11               |                            |                     |                  |  |
| 12               |                            |                     |                  |  |
| 13               |                            |                     |                  |  |
| 14               |                            |                     |                  |  |
| 15               |                            |                     |                  |  |
| 16               |                            |                     |                  |  |
| 17               |                            |                     |                  |  |
| 18               |                            |                     |                  |  |
| 19               |                            |                     |                  |  |
| 20               |                            |                     |                  |  |
| 21               |                            |                     |                  |  |
| 22               |                            |                     |                  |  |
| 23               |                            |                     |                  |  |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u> | I certify that the above information is correct: |
| Calibration Date: <u>12-05-95</u> (Signed)   | <u>[Signature]</u> 12-05-95                      |
| Next Calibration Due: <u>05-05-96</u>        | Administrative Coordinator Date                  |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   | INSTRUMENT INFORMATION                            |
|--|---|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer <u>Eberline</u>           |
| Customer Address: <u>P.O. Box 3700</u> | Model <u>ESP-2</u> Serial Number <u>1522</u>      |
| <u>Pittsburgh, PA 15230</u>            | External Probe(s) <u>HP270</u> Serial # <u>#1</u> |
| Customer P.O.# <u>MB-14027-S</u>       | Calibration Method <u>137Cs s/n 10263 200mC:</u>  |
| Work Order # <u>I-95-08-211</u>        | <u>Pulser s/n 101500</u>                          |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | N/A              | 1 mR/hr                    | 1.00 mR/hr          | 1.00 mR/hr   | All Calibrations Btn. + & - 10% |
| 2  |                  | 10                         | 10.1                | 10.1         | Battery: OK                     |
| 3  |                  | 150                        | 145                 | 145          | Reset: OK                       |
| 4  |                  | 250                        | 251                 | 251          | Light: OK                       |
| 5  |                  | 750                        | 733                 | 733          | Speaker: OK                     |
| 6  |                  | 1,500                      | 1,490               | 1,490        | High Voltage: 907 Volts         |
| 7  |                  |                            |                     |              | DT = 1.38 - 04                  |
| 8  |                  |                            |                     |              | CC = 7.31 + 07                  |
| 9  |                  |                            |                     |              |                                 |
| 10 |                  |                            |                     |              |                                 |
| 11 |                  |                            |                     |              |                                 |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: [Signature]  
 Calibration Date: 08-24-95 (Signed)  
 Next Calibration Due: 11-24-95

I certify that the above information is correct:  
[Signature] 08-24-95  
 Administrative Coordinator Date



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

4122

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |   |
|----------------------|---|-------------------------|---|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>   |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>ESP-1</u> Serial Number <u>01522</u>                           |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | <u>HP270</u> Serial # _____                                       |
| Work Order #         | <u>I-95-05-220</u>                                  | Calibration Method      | <u>137</u> <u>Pulser s/n 101500</u><br><u>Cs s/n 10263 200mCi</u> |

### INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | N/A              | 1 mR/hr                    | 1.02 mR/hr          | 1.02 mR/hr   | All Calibrations Btn. + & - 10% |
| 2  |                  | 10                         | 10.3                | 10.3         | Battery: OK                     |
| 3  |                  | 150                        | 146                 | 146          | Reset: OK                       |
| 4  |                  | 250                        | 256                 | 256          | Speaker: OK                     |
| 5  |                  | 750                        | 771                 | 771          | Light: OK                       |
| 6  |                  | 1,500                      | 1,550               | 1,550        | DT = 1.38 - 04                  |
| 7  |                  |                            |                     |              | CC = 7.31 + 07                  |
| 8  |                  |                            |                     |              | High Voltage = 900 Volts        |
| 9  |                  |                            |                     |              |                                 |
| 10 |                  |                            |                     |              |                                 |
| 11 |                  |                            |                     |              |                                 |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct:<br><u>[Signature]</u> |
| Calibration Date: <u>05-16-95</u>                        | <u>05-16-95</u>  |
| Next Calibration Due: <u>08-16-95</u>                    | Administrative Coordinator <u>[Signature]</u> Date                     |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION  | INSTRUMENT INFORMATION                                 |
|---|--|
| Customer Name: <u>Westinghouse</u>                                    | Instrument Manufacturer <u>Eberline</u>                |
| Customer Address: <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model <u>ESP</u> Serial Number <u>01522</u>            |
| Customer P.O.# <u>MB-14027-S</u>                                      | External Probe(s) <u>AC-3</u> Serial # <u>7A</u>       |
| Work Order # <u>I-95-02-213</u>                                       | <u>HP270</u>   |
|   | Calibration Method <u>137</u> Pulser s/n <u>101500</u> |
|   | <u>Cs s/n 10263 200mCi</u>                             |

### INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 N/A            | 1 mR/hr                    | 1.01 mR/hr          | 1.01 mR/hr   | All Calibrations Btn. + & - 10% |
| 2                | 10                         | 9.87                | 9.87         | Battery Check: OK               |
| 3                | 150                        | 146                 | 146          | Reset: OK                       |
| 4                | 250                        | 246                 | 246          | Light: OK                       |
| 5                | 750                        | 747                 | 747          | Audio: OK                       |
| 6                | 1,500                      | 1,510               | 1,510        | DT = 1.38 - 04                  |
| 7                |                            |                     |              | CC = 7.31 + 07                  |
| 8                |                            |                     |              | High Voltage = 902 Volts        |
| 9                |                            |                     |              |                                 |
| 10               |                            |                     |              |                                 |
| 11               |                            |                     |              |                                 |
| 12               |                            |                     |              |                                 |
| 13               |                            |                     |              |                                 |
| 14               |                            |                     |              |                                 |
| 15               |                            |                     |              |                                 |
| 16               |                            |                     |              |                                 |
| 17               |                            |                     |              |                                 |
| 18               |                            |                     |              |                                 |
| 19               |                            |                     |              |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>James Christopher</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>02-15-95</u>                              | <u>Shirley M. Wilson</u> 02-15-95                |
| Next Calibration Due: <u>05-15-95</u>                          | Administrative Coordinator Date                  |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

22

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION   | INSTRUMENT INFORMATION  |
|--|---|
| Customer Name: <u>Westinghouse</u>   | Instrument Manufacturer <u>Eberline</u>   |
| Customer Address: <u>Avenue A &amp; West Street</u><br><u>Pittsburgh, PA 15221</u> | Model <u>ESP-2</u> Serial Number <u>01522</u>   |
| Customer P.O.# <u>MB-14027-S</u>   | External Probe(s) <u>HP270</u> Serial # _____   |
| Work Order # <u>I-94-11-218</u>  | Calibration Method <u><sup>137</sup>Cs s/n 10263 200mCi</u><br><u>Pulser s/n 101500</u> |

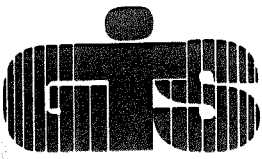
## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | N/A              | 1 mR/hr                    | 0.996 mR/hr         | 0.996 mR/hr  | All Calibrations Btn. + & - 10% |
| 2  |                  | 10                         | 9.98                | 9.98         | DT = 1.38 - 04                  |
| 3  |                  | 150                        | 149                 | 149          | CC = 7.31 + 07                  |
| 4  |                  | 250                        | 255                 | 255          | High Voltage = 903 Volts        |
| 5  |                  | 750                        | 776                 | 776          | Audio: OK                       |
| 6  |                  | 1,500                      | 1,580               | 1,580        | Light: OK                       |
| 7  |                  |                            |                     |              | Reset: OK                       |
| 8  |                  |                            |                     |              |                                 |
| 9  |                  |                            |                     |              |                                 |
| 10 |                  |                            |                     |              |                                 |
| 11 |                  |                            |                     |              |                                 |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct:<br><u>[Signature]</u> |
| Calibration Date: <u>11-09-94</u>                        | <u>11-09-94</u>  |
| Next Calibration Due: <u>02-09-95</u>                    | Administrative Coordinator Date  |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION   | INSTRUMENT INFORMATION  |
|--|---|
| Customer Name: <u>Westinghouse</u>   | Instrument Manufacturer <u>Eberline</u>                                       |
| Customer Address: <u>Avenue A &amp; West Street</u><br><u>Pittsburgh, PA 15221</u> | Model <u>ESP-2</u> Serial Number <u>01522</u>                                 |
| Customer P.O.# <u>MB-14027-S</u>   | External Probe(s) <u>HP270</u> Serial # _____                                 |
| Work Order # <u>I-94-08-218</u>  | Calibration Method <u>137 Cs s/n 101500</u><br><u>Pulser s/n 10263 200mCi</u> |

### INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | N/A              | 1 mR/hr                    | 0.938 mR/hr         | 0.980 mR/hr  | All Calibrations Btn. + & - 10% |
| 2  |                  |                            |                     |              |                                 |
| 3  |                  | 10                         | 9.26                | 10           | DT = 1.38 - 04                  |
| 4  |                  |                            |                     |              |                                 |
| 5  |                  | 150                        | 127                 | 14.5         | CC = 7.31 + 07                  |
| 6  |                  |                            |                     |              |                                 |
| 7  |                  | 250                        | 213                 | 252          | High Voltage = 904 Volts        |
| 8  |                  |                            |                     |              |                                 |
| 9  |                  | 750                        | 619                 | 760          | Audio: OK                       |
| 10 |                  |                            |                     |              |                                 |
| 11 |                  | 1,500                      | 1,250               | 1,580        |                                 |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct:<br><u>[Signature]</u> |
| Calibration Date: <u>08-11-94</u>                        | <u>08-11-94</u>  |
| Next Calibration Due: <u>11-11-94</u>                    | Administrative Coordinator <u>[Signature]</u> Date                     |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION   | INSTRUMENT INFORMATION  |
|--|---|
| Customer Name: <u>Westinghouse Electric</u>  | Instrument Manufacturer <u>Eberline</u>                                       |
| Customer Address: <u>Avenue A &amp; West Street</u><br><u>Pittsburgh, PA 15221</u> | Model <u>ESP-2</u> Serial Number <u>01522</u>                                 |
| Customer P.O.# <u>MB-14027-S</u>   | External Probe(s) <u>HP270</u> Serial # _____                                 |
| Work Order # <u>I-94-04-227</u>  | Calibration Method <u>137 Cs s/n 10263 200mC:</u><br><u>Pulser s/n 101500</u> |

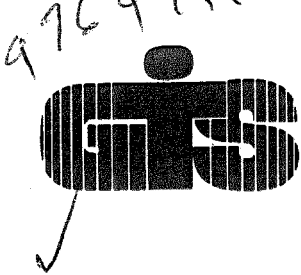
### INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 N/A            | 1 mR/hr                    | 0.973 mR/hr         | 0.973 mR/hr  | All Calibrations Btn. + & - 10% |
| 2                | 10                         | 9.81                | 9.81         | DT = 1.20 - 04                  |
| 3                | 150                        | 145                 | 145          | CC = 8.00 + 07                  |
| 4                | 250                        | 247                 | 247          | HV = 902                        |
| 5                | 750                        | 729                 | 729          | Audio: OK                       |
| 6                | 1,500                      | 1,470               | 1,470        |                                 |
| 7                |                            |                     |              |                                 |
| 8                |                            |                     |              |                                 |
| 9                |                            |                     |              |                                 |
| 10               |                            |                     |              |                                 |
| 11               |                            |                     |              |                                 |
| 12               |                            |                     |              |                                 |
| 13               |                            |                     |              |                                 |
| 14               |                            |                     |              |                                 |
| 15               |                            |                     |              |                                 |
| 16               |                            |                     |              |                                 |
| 17               |                            |                     |              |                                 |
| 18               |                            |                     |              |                                 |
| 19               |                            |                     |              |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>05-03-94</u>                        | <u>[Signature]</u> 05-03-94                      |
| Next Calibration Due: <u>08-03-94</u>                    | Administrative Coordinator Date                  |



GTS Instrument Services  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

#22

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                                | INSTRUMENT INFORMATION                            |
|---|---|
| Customer Name: <u>Westinghouse Electric Corp.</u>   | Instrument Manufacturer <u>Eberline</u>           |
| Customer Address: <u>Avenue A &amp; West Street</u> | Model <u>ESP-2</u> Serial Number <u>1522</u>      |
| <u>Pittsburgh, PA 15221</u>                         | External Probe(s) <u>HP270</u> Serial # _____     |
| Customer P.O.# <u>MB-14016-H</u>                    | Calibration Method <u>137 Cs s/n 10263 200mCi</u> |
| Work Order # <u>I-94-01-224</u>                     | <u>Electrostatic s/n ES-17225</u>                 |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response    |                | Comment                                    |
|------------------|----------------------------|------------------------|----------------|--|
|                  |                            | Before Calib.          | After Calib.   |  |
| 1 <u>N/A</u>     | <u>1 mR/hr</u>             | <u>Initial</u>         | <u>1 mR/hr</u> | <u>All Calibrations Btn. + &amp; - 10%</u> |
| 2                | <u>10</u>                  | <u>Calibraiton</u><br> | <u>9.84</u>    | <u>DT = 1.20 - 04</u>                      |
| 3                | <u>150</u>                 |                        | <u>143</u>     | <u>CC = 8.00 + 07</u>                      |
| 4                | <u>250</u>                 |                        | <u>244</u>     | <u>High Voltage = 900 Volts</u>            |
| 5                | <u>750</u>                 |                        | <u>725</u>     | <u>Audio: OK</u>                           |
| 6                | <u>1,000</u>               |                        | <u>1,480</u>   | <u>Calibration on Channel 1 for</u>        |
| 7                |                            |                        |                | <u>HP 270 Probe</u>                        |
| 8                |                            |                        |                |  |
| 9                |                            |                        |                |  |
| 10               |                            |                        |                |  |
| 11               |                            |                        |                |  |
| 12               |                            |                        |                |  |
| 13               |                            |                        |                |  |
| 14               |                            |                        |                |  |
| 15               |                            |                        |                |  |
| 16               |                            |                        |                |  |
| 17               |                            |                        |                |  |
| 18               |                            |                        |                |  |
| 19               |                            |                        |                |  |
| 20               |                            |                        |                |  |
| 21               |                            |                        |                |  |
| 22               |                            |                        |                |  |
| 23               |                            |                        |                |  |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|   |   |
|---|---|
| Instrument Calibrated by: <u>[Signature]</u><br>Calibration Date: <u>01-31-94</u> (Signed)<br>Next Calibration Due: <u>04-30-94</u> | I certify that the above information is correct:<br><u>[Signature]</u> <u>01-31-94</u><br>Administrative Coordinator Date |
|---|---|





HEALTH PHYSICS inc.

2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|   |                                |
|---|--------------------------------|
| SHIPPING ADDRESS                                | BILLING ADDRESS (If Different) |
| W E C<br>Ave. "A" & W. Street<br>Pgh., PA 15112 | SAME                           |

CONTACT: J. Flanigan PHONE: (—) — DATE: 7/14/93 P.O.# MA 893285

Receiving Comments: Calibration, loose Part I

Instrument Received:  Within Toler.  $\pm 10\%$    $\pm 10-20\%$   Out Toler.  Requires Repair

Mfg. Inst. Eberline Model # ESP-2 Serial # 1532  
 Detector " Model # HP-270 Serial # 306M

CALIBRATION  REPAIR  SALE  LOAN By: J. Douglas

| scale     | source | reading | scale     | source | reading | scale     | source | reading |
|-----------|--------|---------|-----------|--------|---------|-----------|--------|---------|
|           | mR/hr  |         |           | mR/hr  |         |           | mR/hr  |         |
| <u>on</u> | 1      | 1       | <u>on</u> | 40     | 37.5    |           | 600    | 594     |
|           | 4      | 3.8     |           | 130    | 112     | <u>on</u> | 800    | 795     |
|           | 9.2    | 8.8     |           | 404    | 394     |           |        |         |

Calibration Source:  GAMMA  ALPHA  BETA  ELECTRONIC  OTHER

Description:  ra-226  cs-137  pu-239  sr-90  mp-1

|                                   |   |
|-----------------------------------|---|
| RESPONSE GRAPH <u>N/A</u>         | PROBE EFFICIENCIES <u>N/A</u>             |
|                                   | Alpha _____ & Beta _____ &                |
|                                   | Check Source Reading <u>N/A</u>           |
|                                   | Battery Check Reading <u>N/A</u>          |
|                                   | Detector Angle <u>Perpendicular</u>       |
|                                   | Corrections <u>N/A</u> $\pm 10\%$ to R/HR |
| TEMP/HUMIDITY <u>69.2°F / 44%</u> |   |

Maintenance & Comments: Batteries OK, Tightened speaker, HV  $\approx$  900, CA  $\approx$  8.80 + 0.7, DT  $\approx$  130 - 0.4, AC  $\approx$  1.00 + 0.6.

|                             |  |       |   |                     |
|-----------------------------|--|-------|---|---------------------|
| CALIBRATION <u>Contract</u> |  | 40.00 | QA Dept. <u>J.S.</u>                        | Warranty _____      |
| LABOR                       |  |       | Shipping <u>UPS</u>                         | Date <u>7/14/93</u> |
| MATERIALS                   |  |       | Pick-Up _____                               | Date <u>7/14</u>    |
| &                           |  |       | This Certificate Expires In <u>3</u> Months |                     |
| SALES                       |  |       | Re-Calibrate On Or Before <u>10/14/93</u>   |                     |
| SHIPPING <u>UPS</u>         |  |       | Job ID # <u>52369</u>                       |                     |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.



2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|  |        |  |           |   |         |  |        |                                |  |
|--|--------|--|-----------|---|---------|--|--------|--------------------------------|--|
| SHIPPING ADDRESS   |        |  |           | BILLING ADDRESS (If Different)                            |         |  |        |                                |  |
| Westinghouse Corp.<br>811 Ate 51 South<br>Large, PA 15025  |        |  |           | SAME  |         |  |        |                                |  |
| CONTACT: <u>Larry Smith</u> PHONE: (—) — DATE: <u>3/31/93</u> P.O.# <u>SAME</u>  |        |  |           |   |         |  |        |                                |  |
| Receiving Comments: <u>Calibration / Repair, Wrong Cable!, Speaker Bad, HV?</u>  |        |  |           |   |         |  |        |                                |  |
| Instrument Received:   |        | Within Toler. $\pm 10\%$                   |           | $\pm 10-20\%$   |         | Out Toler. <input checked="" type="checkbox"/> Requires Repair |        |                                |  |
| Mfg. Inst. <u>Eberline</u>   |        | Model # <u>ESP-2</u>                       |           | Serial # <u>01522</u>                                     |         |  |        |                                |  |
| Detector <u>"</u>  |        | Model # <u>HP-270</u>                      |           | Serial # <u>506M</u><br><u>710316</u>                     |         |  |        |                                |  |
| <input checked="" type="checkbox"/> CALIBRATION  |        | <input checked="" type="checkbox"/> REPAIR |           | SALE  |         | LOAN By: <u>J. Douglas</u>                                     |        |                                |  |
| scale  | source | reading                                    | scale     | source  | reading | scale  | source | reading                        |  |
|  | mR/hr  | mR/hr                                      |           | mR/hr   | mR/hr   |  | mR/hr  | mR/hr                          |  |
| <u>on</u>  | 1      | 1.01                                       | <u>on</u> | 40  | 37.5    | <u>on</u>  | 600    | 608                            |  |
|  | 4      | 3.89                                       |           | 120   | 110     |  | 800    | 795                            |  |
|  | 9.2    | 9.10                                       |           | 404   | 410     |  |        |                                |  |
| Calibration Source: <input checked="" type="checkbox"/> GAMMA  |        | <input type="checkbox"/> ALPHA             |           | <input type="checkbox"/> BETA                             |         | <input type="checkbox"/> ELECTRONIC                            |        | <input type="checkbox"/> OTHER |  |
| Description: <input checked="" type="checkbox"/> ra-226  |        | <input type="checkbox"/> cs-137            |           | <input type="checkbox"/> pu-239                           |         | <input type="checkbox"/> sr-90                                 |        | <input type="checkbox"/> mp-1  |  |
| RESPONSE GRAPH <u>N/A</u>  |        |  |           | PROBE EFFICIENCIES <u>N/A</u>                             |         |  |        |                                |  |
|  |        |  |           | Alpha _____ % Beta _____ %                                |         |  |        |                                |  |
|  |        |  |           | Check Source Reading <u>N/A</u>                           |         |  |        |                                |  |
|  |        |  |           | Battery Check Reading <u>N/A</u>                          |         |  |        |                                |  |
|  |        |  |           | Detector Angle <u>Perpendicular</u>                       |         |  |        |                                |  |
|  |        |  |           | Corrections <u>N/A <math>\pm 10\%</math> Gamma to R/h</u> |         |  |        |                                |  |
| TEMP/HUMIDITY <u>69.8 °F / 27 %</u>  |        |  |           |   |         |  |        |                                |  |
| Maintenance & Comments <u>Replaced @ C-Cells, Re-Soldered HV-Section, Replaced Speaker, Sale @ Cable mHV to BNC, Returning BNC to BNC Cable, HV= 9.05±0.2, DT= 1.30±0.4, CC= 8.80±0.7, Alarm= 1.00±0.6, mR/HR Rate. Mode, Tested, Inspected &amp; Calibrated</u> |        |  |           |   |         |  |        |                                |  |
| CALIBRATION <u>Contract</u>  |        | 40.00                                      |           | QA Dept. <u>JAD</u>                                       |         | Warranty <u>90 DAYS</u>  |        |                                |  |
| LABOR <u>(2) HR</u>  |        | 60.00/HR                                   |           | Shipping <u>UPS</u>                                       |         | Date <u>3/31/93</u>  |        |                                |  |
| MATERIALS <u>(6) C Cells</u>   |        | 1.5000                                     |           | Pick-Up _____   |         | Date <u>—/—/—</u>  |        |                                |  |
| & <u>(1) Speaker # ADS P4(4)</u>   |        | 8.13                                       |           | This Certificate Expires In <u>3 Months</u>               |         |  |        |                                |  |
| SALES <u>(1) mHV to BNC</u>  |        | 45.00                                      |           | Re-Calibrate On Or Before <u>6/30/93</u>                  |         |  |        |                                |  |
| SHIPPING <u>UPS</u>  |        | —  |           | Job ID # <u>52089</u>                                     |         |  |        |                                |  |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.

**CODE NUMBER 23**

**REPORT #001**



GTS Instrument Services  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 724/733-1900 Fax: 724/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

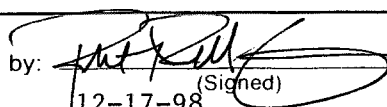
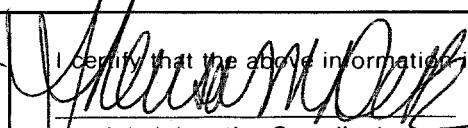
| CUSTOMER INFORMATION |                                     | INSTRUMENT INFORMATION  |                       |
|----------------------|-------------------------------------|-------------------------|-----------------------|
| Customer Name:       | Westinghouse                        | Instrument Manufacturer | Eberline              |
| Customer Address:    | PO Box 3700<br>Pittsburgh, PA 15230 | Model                   | PRM-7                 |
|                      |                                     | Serial Number           | 234                   |
|                      |                                     | External Probe(s)       | Serial #              |
| Customer P.O.#       | MB-14027-S                          | Calibration Method      | 137 Pulsar s/n 101500 |
| Work Order #         | I-98-12-208                         |                         | Cs s/n 10263 200mCi   |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | 25               | 2K CPM                     | 10 uR/hr            | 10 uR/hr     | All Calibrations Btn. + & - 10% |
| 2  |                  | 4K                         | 20                  | 20           |                                 |
| 3  |                  |                            |                     |              | Battery: OK                     |
| 4  | 50               | 2K                         | 10                  | 10           |                                 |
| 5  |                  | 8K                         | 40                  | 40           | Mechanical Zero: OK             |
| 6  |                  |                            |                     |              |                                 |
| 7  | 500              | 0.1 mR/hr                  | 80                  | 100          | Response: OK                    |
| 8  |                  | 0.2                        | 160                 | 200          |                                 |
| 9  |                  | 0.4                        | 320                 | 400          | Reset: OK                       |
| 10 |                  |                            |                     |              |                                 |
| 11 | 5000             | 1                          | 1,000               | 1,000        | Speaker: OK                     |
| 12 |                  | 2                          | 1,950               | 1,950        |                                 |
| 13 |                  | 4                          | 3,800               | 3,800        | High Voltage = 1158 Volts       |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              | 1000 uR/hr = 200K CPM           |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|                           |   |  |  |
|---------------------------|---|--|--|
| Instrument Calibrated by: | <br>(Signed) | I certify that the above information is correct: |  |
| Calibration Date:         | 12-17-98  |  | 12-17-98   |
| Next Calibration Due:     | 03-17-99  | Administrative Coordinator                       | Date   |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 724/733-1900 Fax: 724/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

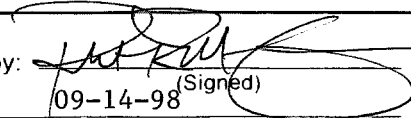
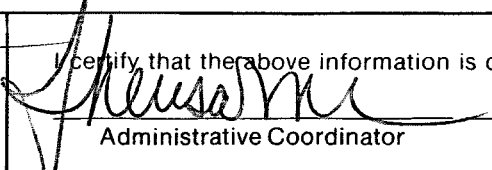
| CUSTOMER INFORMATION |                      | INSTRUMENT INFORMATION  |                       |
|----------------------|----------------------|-------------------------|-----------------------|
| Customer Name:       | Westinghouse         | Instrument Manufacturer | Eberline              |
| Customer Address:    | PO Box 3700          | Model                   | PRM-7                 |
|                      | Pittsburgh, PA 15230 | Serial Number           | 234                   |
|                      |                      | External Probe(s)       | Serial #              |
| Customer P.O.#       | MB-14027-S           | Calibration Method      | 137 Pulsar s/n 101500 |
| Work Order #         | I-98-09-208          |                         | Cs s/n 10263 200mCi   |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | 25               | 1.9K CPM                   | 10 uR/hr            | 10 uR/hr     | All Calibrations Btn. + & - 10% |
| 2  |                  | 3.8K                       | 20                  | 20           |                                 |
| 3  |                  |                            |                     |              | Battery: OK                     |
| 4  | 50               | 1.9K                       | 10                  | 10           |                                 |
| 5  |                  | 7.6K                       | 40                  | 40           | Mechanical Zero: OK             |
| 6  |                  |                            |                     |              |                                 |
| 7  | 500              | 0.1 mR/hr                  | 100                 | 100          | Response: OK                    |
| 8  |                  | 0.2                        | 200                 | 200          |                                 |
| 9  |                  | 0.4                        | 380                 | 380          | Reset: OK                       |
| 10 |                  |                            |                     |              |                                 |
| 11 | 5000             | 1                          | 1,000               | 1,000        | Speaker: OK                     |
| 12 |                  | 2                          | 2,000               | 2,000        |                                 |
| 13 |                  | 4                          | 3,900               | 3,900        | High Voltage = 1160 Volts       |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              | 1000 uR/hr = 190K CPM           |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|                           |   |  |          |
|---------------------------|---|--|----------|
| Instrument Calibrated by: |  | I certify that the above information is correct:                                     |          |
| Calibration Date:         | 09-14-98 (Signed)   |  | 09-14-98 |
| Next Calibration Due:     | 12-14-98  | Administrative Coordinator   | Date     |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 724/733-1900 Fax: 724/327-8189

**CALIBRATION  
 CERTIFICATE**

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                 |   | INSTRUMENT INFORMATION |                          |
|--------------------------------------|---|------------------------|--------------------------|
| Customer Name: <u>Westinghouse</u>   | Instrument Manufacturer <u>Eberline</u>                   | Model <u>PRM-7</u>     | Serial Number <u>234</u> |
| Customer Address: <u>PO Box 3700</u> | External Probe(s) _____                                   | Serial # _____         |                          |
| <u>Pittsburgh, PA 15230</u>          |   |                        |                          |
| Customer P.O.# <u>MB-14027-S</u>     | Calibration Method <u><sup>137</sup>Pulser s/n 101500</u> | <u>Cs s/n 10263</u>    | <u>200mCi</u>            |
| Work Order # <u>I-98-05-208</u>      |   |                        |                          |

**INSTRUMENT CALIBRATION INFORMATION**

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | 25               | 1.9K CPM                   | 10 uR/hr            | 10 uR/hr     | All Calibrations Btn. + & - 10% |
| 2  |                  | 3.8K                       | 20                  | 20           |                                 |
| 3  | 50               | 1.9K                       | 10                  | 10           | Battery: OK                     |
| 4  |                  | 7.6K                       | 40                  | 40           |                                 |
| 5  | 500              | 0.1 mR/hr                  | 115                 | 100          | Mechanical Zero: OK             |
| 6  |                  | 0.2                        | 220                 | 195          |                                 |
| 7  |                  | 0.4                        | 420                 | 375          |                                 |
| 8  | 5000             | 1                          | 1,000               | 1,000        | Response: OK                    |
| 9  |                  | 2                          | 2,000               | 2,000        |                                 |
| 10 |                  | 4                          | 3,900               | 3,900        |                                 |
| 11 |                  |                            |                     |              | Reset: OK                       |
| 12 |                  |                            |                     |              | Speaker: OK                     |
| 13 |                  |                            |                     |              | High Voltage = 1160 Volts       |
| 14 |                  |                            |                     |              | 1000 uR/hr = 190K CPM           |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

**STATEMENT OF CERTIFICATION**

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u> | I certify that the above information is correct: |
| Calibration Date: <u>05-11-98</u> (Signed)   | <u>[Signature]</u>                               |
| Next Calibration Due: <u>08-11-98</u>        | <u>05-11-98</u>                                  |
|  | Administrative Coordinator Date                  |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                 | INSTRUMENT INFORMATION                                    |
|--------------------------------------|---|
| Customer Name: <u>Westinghouse</u>   | Instrument Manufacturer <u>Eberline</u>                   |
| Customer Address: <u>PO Box 3700</u> | Model <u>PRM-7</u> Serial Number <u>234</u>               |
| <u>Pittsburgh, PA 15230</u>          | External Probe(s) _____ Serial # _____                    |
| Customer P.O.# <u>MB-14027-S</u>     | Calibration Method <u><sup>137</sup>Pulsar s/n 120935</u> |
| Work Order # <u>I-98-02-209</u>      | <u>Cs s/n 10263 200mCi</u>                                |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | 25               | 2.04K CPM                  | 10 uR/hr            | 10 uR/hr     | All Calibrations Btn. + & - 10% |
| 2  |                  | 4.08K                      | 20                  | 20           |                                 |
| 3  |                  |                            |                     |              | Battery: OK                     |
| 4  | 50               | 2.04K                      | 10                  | 10           |                                 |
| 5  |                  | 8.16K                      | 42                  | 42           | Mechanical Zero: OK             |
| 6  |                  |                            |                     |              |                                 |
| 7  | 500              | 0.1 mR/hr                  | 105                 | 105          | Response: OK                    |
| 8  |                  | 0.2                        | 210                 | 210          |                                 |
| 9  |                  | 0.4                        | 405                 | 405          | Speaker: OK                     |
| 10 |                  |                            |                     |              |                                 |
| 11 | 5000             | 1                          | 1,000               | 1,000        | Light: N/A (inoperable)         |
| 12 |                  | 2                          | 1,950               | 1,950        |                                 |
| 13 |                  | 4                          | 3,850               | 3,850        | High Voltage = 1168 Volts       |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              | 1000 uR/hr = 204K CPM           |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: William Owen  
 Calibration Date: 02-05-98  
 Next Calibration Due: 05-05-98

I certify that the above information is correct:  
[Signature]  
 Administrative Coordinator Date 02-05-98



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                 | INSTRUMENT INFORMATION                         |
|--------------------------------------|--|
| Customer Name: <u>Westinghouse</u>   | Instrument Manufacturer <u>Eberline</u>        |
| Customer Address: <u>PO Box 3700</u> | Model <u>PRM-7</u> Serial Number <u>234</u>    |
| <u>Pittsburgh, PA 15230</u>          | External Probe(s) _____ Serial # _____         |
| Customer P.O.# <u>MB-14027-S</u>     | Calibration Method <u>137Pulsar s/n 120935</u> |
| Work Order # <u>I-97-09-210</u>      | <u>Cs s/n 10263 200mCi</u>                     |

### INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | 25               | 1.98K CPM                  | 9 uR/hr             | 10 uR/hr     | All Calibrations Btn. + & - 10% |
| 2  |                  | 3.96K                      | 19                  | 20.25        | Battery: OK                     |
| 3  |                  |                            |                     |              |                                 |
| 4  | 50               | 1.98K                      | 9.5                 | 10           | Mechanical Zero: OK             |
| 5  |                  | 7.92K                      | 38                  | 40           |                                 |
| 6  |                  |                            |                     |              |                                 |
| 7  | 500              | 0.1 mR/hr                  | 110                 | 110          | Response: OK                    |
| 8  |                  | 0.2                        | 220                 | 220          |                                 |
| 9  |                  | 0.4                        | 380                 | 380          | Speaker: OK                     |
| 10 |                  |                            |                     |              |                                 |
| 11 | 5000             | 1                          | 1,000               | 1,000        | Light: Inoperable               |
| 12 |                  | 2                          | 1,900               | 1,900        |                                 |
| 13 |                  | 4                          | 3,800               | 3,800        | High Voltage = 1170 Volts       |
| 14 |                  |                            |                     |              | 1000 uR/hr = 198K CPM           |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: William Owen  
 Calibration Date: 09-22-97 (Signed)  
 Next Calibration Due: 12-22-97

I certify that the above information is correct:  
William Owen 09-22-97  
 Administrative Coordinator Date





**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |   |
|----------------------|---|-------------------------|---|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>   |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>PRM-7</u> Serial Number <u>234</u>                     |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | Serial # _____  |
| Work Order #         | <u>I-97-05-209</u>                                  | Calibration Method      | <u>137Cs s/n 10263 200mCi</u><br><u>Pulser s/n 101500</u> |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment  |
|----|------------------|----------------------------|---------------------|--------------|--|
|    |                  |                            | Before Calib.       | After Calib. |  |
| 1  | 25               | 2.05K CPM                  | 10 uR/hr            | 10 uR/hr     | All Calibrations Btn. + & - 10%                        |
| 2  |                  | 4.1K                       | 20                  | 20           |  |
| 3  | 50               | 2.05K                      | 10                  | 10           | Battery: OK  |
| 4  |                  | 8.2K                       | 40                  | 40           |  |
| 5  | 500              | 0.1 mR/hr                  | 100                 | 100          | Mechanical Zero: OK                                    |
| 6  |                  | 0.2                        | 200                 | 200          |  |
| 7  |                  | 0.4                        | 370                 | 370          |  |
| 8  | 5000             | 1                          | 1,000               | 1,000        | Response: OK   |
| 9  |                  | 2                          | 1,850               | 1,850        |  |
| 10 |                  | 4                          | 3,600               | 3,600        |  |
| 11 |                  |                            |                     |              | High Voltage = 1156 Volts<br><br>1000 uR/hr = 205K CPM |
| 12 |                  |                            |                     |              |  |
| 13 |                  |                            |                     |              |  |
| 14 |                  |                            |                     |              |  |
| 15 |                  |                            |                     |              |  |
| 16 |                  |                            |                     |              |  |
| 17 |                  |                            |                     |              |  |
| 18 |                  |                            |                     |              |  |
| 19 |                  |                            |                     |              |  |
| 20 |                  |                            |                     |              |  |
| 21 |                  |                            |                     |              |  |
| 22 |                  |                            |                     |              |  |
| 23 |                  |                            |                     |              |  |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument)

|  |   |
|--|---|
| Instrument Calibrated by: <u>[Signature]</u> | I certify that the above information is correct:      |
| Calibration Date: <u>06-09-97</u> (Signed)   | <u>06-09-97</u>                                       |
| Next Calibration Due: <u>09-09-97</u>        | <u>[Signature]</u><br>Administrative Coordinator Date |



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# CALIBRATION CERTIFICATE

#23

This Certificate will be accompanied by Calibration Charts or Readings where applicable

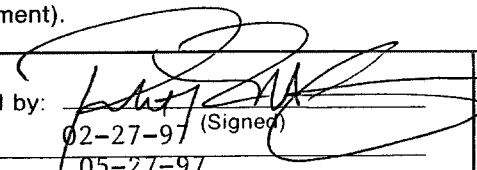
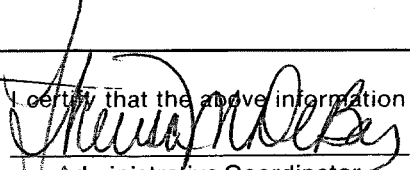
| CUSTOMER INFORMATION |                                       | INSTRUMENT INFORMATION  |  |
|----------------------|---------------------------------------|-------------------------|--|
| Customer Name:       | Westinghouse                          | Instrument Manufacturer | Eberline                                     |
| Customer Address:    | P.O. Box 3700<br>Pittsburgh, PA 15230 | Model                   | PRM-7 Serial Number 234                      |
| Customer P.O.#       | MB-14027-S                            | External Probe(s)       | Serial #                                     |
| Work Order #         | I-97-02-209                           | Calibration Method      | 137 Pulser s/n 101500<br>Cs s/n 10263 200mCi |

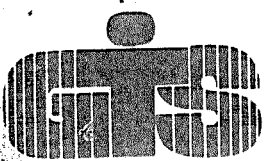
### INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | 25               | 1.95K CPM                  | 10 uR/hr            | 10 uR/hr     | All Calibrations Btn. + & - 10% |
| 2  |                  | 3.90                       | 20                  | 20           |                                 |
| 3  |                  |                            |                     |              |                                 |
| 4  | 50               | 1.95K                      | 10                  | 10           | Mechanical Zero: OK             |
| 5  |                  | 7.8K                       | 40                  | 40           |                                 |
| 6  |                  |                            |                     |              | Response: OK                    |
| 7  | 500              | 0.1 mR/hr                  | 105                 | 105          |                                 |
| 8  |                  | 0.2                        | 210                 | 210          |                                 |
| 9  |                  | 0.4                        | 390                 | 390          | Reset: OK                       |
| 10 |                  |                            |                     |              | Audio: OK                       |
| 11 | 5000             | 1                          | 950                 | 1,000        |                                 |
| 12 |                  | 2                          | 1,850               | 2,000        |                                 |
| 13 |                  | 4                          | 3,600               | 4,000        | High Voltage = 1160 Volts       |
| 14 |                  |                            |                     |              | 1000 uR/hr = 195K CPM           |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|                           |   |  |  |
|---------------------------|---|--|--|
| Instrument Calibrated by: |  | I certify that the above information is correct: |  |
| Calibration Date:         | 02-27-97 (Signed)   |  | 02-27-97   |
| Next Calibration Due:     | 05-27-97  | Administrative Coordinator                       | Date   |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION                   | INSTRUMENT INFORMATION                            |
|--|---|
| Customer Name: <u>Westinghouse</u>     | Instrument Manufacturer <u>Eberline</u>           |
| Customer Address: <u>P.O. Box 3700</u> | Model <u>PRM-7</u> Serial Number <u>234</u>       |
| <u>Pittsburgh, PA 15230</u>            | External Probe(s) _____ Serial # _____            |
| Customer P.O.# <u>MB-14027-S</u>       | Calibration Method <u>137 Cs s/n 10263 200mCi</u> |
| Work Order # <u>I996-10-209</u>        | <u>Pulsar s/n 101500</u>                          |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|------------------|----------------------------|---------------------|--------------|---------------------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |
| 1 25             | 1.90K CPM                  | 10 uR/hr            | 10 uR/hr     | All Calibrations Btn. + & - 20% |
| 2                | 3.80K                      | 20.5                | 20.5         | Battery: OK                     |
| 3                | 1.90K                      | 10                  | 10           | Mechanical Zero: OK             |
| 4 50             | 7.60K                      | 40.5                | 40.5         | Response: OK                    |
| 5                | 0.1 mR/hr                  | 110                 | 110          | Reset: OK                       |
| 6 500            | 0.2                        | 220                 | 220          | Audio: OK                       |
| 7                | 0.4                        | 400                 | 400          | Light: Inoperable               |
| 8                | 1                          | 1,000               | 1,000        | High Voltage = 1163 Volts       |
| 9                | 2                          | 2,950               | 1,950        | 1000 uR/hr = 190K CPM           |
| 10 5000          | 4                          | 3,800               | 3,800        |                                 |
| 11               |                            |                     |              |                                 |
| 12               |                            |                     |              |                                 |
| 13               |                            |                     |              |                                 |
| 14               |                            |                     |              |                                 |
| 15               |                            |                     |              |                                 |
| 16               |                            |                     |              |                                 |
| 17               |                            |                     |              |                                 |
| 18               |                            |                     |              |                                 |
| 19               |                            |                     |              |                                 |
| 20               |                            |                     |              |                                 |
| 21               |                            |                     |              |                                 |
| 22               |                            |                     |              |                                 |
| 23               |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>William Owens</u> | I certify that the above information is correct: |
| Calibration Date: <u>10-29-96</u> (Signed)     | <u>Sharon M. DeBa</u> <u>10-29-96</u>            |
| Next Calibration Due: <u>01-29-97</u>          | Administrative Coordinator Date                  |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |   |
|----------------------|---|-------------------------|---|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>   |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>PRM-7</u> Serial Number <u>234</u>                             |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | Serial # _____  |
| Work Order #         | <u>I-96-07-210</u>                                  | Calibration Method      | <u>137</u> <u>Pulser s/n 120935</u><br><u>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | 25               | 1.82K CPM                  | 10 uR/hr            | 10 uR/hr     | All Calibrations Btn. + & - 10% |
| 2  |                  | 3.64K                      | 20                  | 20           | Battery: OK                     |
| 3  |                  |                            |                     |              |                                 |
| 4  | 50               | 1.82K                      | 10                  | 10           | Mechanical Zero: OK             |
| 5  |                  | 7.28K                      | 40                  | 40           |                                 |
| 6  |                  |                            |                     |              |                                 |
| 7  | 500              | 0.1 mR/hr                  | 100                 | 100          | Response: OK                    |
| 8  |                  | 0.2                        | 200                 | 200          |                                 |
| 9  |                  | 0.4                        | 410                 | 410          | Reset: OK                       |
| 10 |                  |                            |                     |              |                                 |
| 11 | 5000             | 1                          | 1,000               | 1,000        | Speaker: OK                     |
| 12 |                  | 2                          | 2,000               | 2,000        |                                 |
| 13 |                  | 4                          | 4,000               | 4,000        | Light: Inoperable               |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              | High Voltage = 1161 Volts       |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              | 1000 uR/hr = 182K CPM           |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>William Owens</u><br>(Signed) | I certify that the above information is correct:<br><u>[Signature]</u><br>Administrative Coordinator |
| Calibration Date: <u>07-09-96</u>                          | <u>07-09-96</u><br>Date  |
| Next Calibration Due: <u>10-09-96</u>                      |  |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |   |
|----------------------|---|-------------------------|---|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>   |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>PRM-7</u> Serial Number <u>234</u>                             |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | Serial # _____  |
| Work Order #         | <u>I-96-03-262</u>                                  | Calibration Method      | <u>137</u> <u>Pulser s/n 120935</u><br><u>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |                    |
|------------------|----------------------------|---------------------|--------------|---------------------------------|--------------------|
|                  |                            | Before Calib.       | After Calib. |                                 |                    |
| 1 25             | 1.85K CPM                  | Reset               | 10 uR/hr     | All Calibrations Btn. + & - 10% |                    |
| 2                | 3.70K                      | Mechanical          | 20           |                                 |                    |
| 3                |                            | Zero                |              | Battery: OK                     |                    |
| 4 50             | 1.85K                      | ↓                   | 10           |                                 |                    |
| 5                | 7.4K                       |                     | 41           | Mechanical Zero: OK             |                    |
| 6                |                            |                     |              |                                 |                    |
| 7 500            | 0.1 mR/hr                  |                     | 110          | 110                             | Reset: OK          |
| 8                | 0.2                        |                     | 220          | 220                             |                    |
| 9                | 0.4                        |                     | 410          | 410                             | Response: OK       |
| 10               |                            |                     |              |                                 |                    |
| 11 5000          | 1                          |                     | 1,000        | 1,000                           | Speaker: OK        |
| 12               | 2                          |                     | 2,000        | 2,000                           |                    |
| 13               | 4                          |                     | 4,000        | 4,000                           | Light: Not working |
| 14               |                            |                     |              |                                 |                    |
| 15               |                            |                     |              | 1000 uR/hr = 185K CPM           |                    |
| 16               |                            |                     |              |                                 |                    |
| 17               |                            |                     |              | High Voltage = 1152 Volts       |                    |
| 18               |                            |                     |              |                                 |                    |
| 19               |                            |                     |              |                                 |                    |
| 20               |                            |                     |              |                                 |                    |
| 21               |                            |                     |              |                                 |                    |
| 22               |                            |                     |              |                                 |                    |
| 23               |                            |                     |              |                                 |                    |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>William Owens</u><br>(Signed) | I certify that the above information is correct:<br><u>William Owens</u><br>Administrative Coordinator |
| Calibration Date: <u>04-01-96</u>                          | <u>04-01-96</u><br>Date  |
| Next Calibration Due: <u>07-01-96</u>                      |  |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |                                       | INSTRUMENT INFORMATION  |   |
|----------------------|---------------------------------------|-------------------------|---|
| Customer Name:       | Westinghouse                          | Instrument Manufacturer | Eberline  |
| Customer Address:    | P.O. Box 3700<br>Pittsburgh, PA 15221 | Model                   | PRM-7 Serial Number 234                                 |
| Customer P.O.#       | MB-14027-S                            | External Probe(s)       | Serial #  |
| Work Order #         | I-95-12-210                           | Calibration Method      | <sup>137</sup> Cs s/n 10263 200mCi<br>Pulser s/n 120935 |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | 25               | 2.03K CPM                  | 10 uR/hr            | 10 uR/hr     | All Calibrations Btn. + & - 10% |
| 2  |                  | 4.06K                      | 20                  | 20           |                                 |
| 3  |                  |                            |                     |              | Battery: OK                     |
| 4  | 50               | 2.03K                      | 10                  | 10           |                                 |
| 5  |                  | 8.12K                      | 40                  | 40           | Mechanical Zero: OK             |
| 6  |                  |                            |                     |              |                                 |
| 7  | 500              | 0.1 mR/hr                  | 100                 | 100          | Response: OK                    |
| 8  |                  | 0.2                        | 190                 | 190          |                                 |
| 9  |                  | 0.4                        | 370                 | 370          | Reset: OK                       |
| 10 |                  |                            |                     |              |                                 |
| 11 | 5000             | 1                          | 1,000               | 1,000        | Speaker: OK                     |
| 12 |                  | 2                          | 1,900               | 1,900        |                                 |
| 13 |                  | 4                          | 3,750               | 3,750        | Light: Not working              |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              | High Voltage = 1152 Volts       |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              | 1000 uR/hr = 203K CPM           |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>James Hutzsch</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>12-21-95</u>                          | <u>James Hutzsch</u> 12-21-95                    |
| Next Calibration Due: <u>03-21-96</u>                      | Administrative Coordinator Date                  |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable


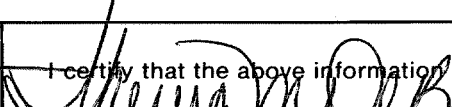
| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |  |
|----------------------|---|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>  |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>PRM-7</u> Serial Number <u>234</u>                                |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | Serial # _____   |
| Work Order #         | <u>I-95-09-210</u>                                  | Calibration Method      | <u><sup>137</sup>Pulser s/n 101500</u><br><u>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | 25               | 2.12K CPM                  | 12 uR/hr            | 10 uR/hr     | All Calibrations Btn. + & - 10% |
| 2  |                  | 4.24K                      | 24.5                | 20           | Battery: OK                     |
| 3  |                  |                            |                     |              |                                 |
| 4  | 50               | 2.12K                      | 11.5                | 10           | Mechanical Zero: OK             |
| 5  |                  | 8.48K                      | 47.5                | 40           |                                 |
| 6  |                  |                            |                     |              |                                 |
| 7  | 500              | 0.1 mR/hr                  | 100                 | 100          | Response: OK                    |
| 8  |                  | 0.2                        | 200                 | 200          |                                 |
| 9  |                  | 0.4                        | 375                 | 375          | Reset: OK                       |
| 10 |                  |                            |                     |              |                                 |
| 11 | 5000             | 1                          | 1,150               | 1,000        | Speaker: OK                     |
| 12 |                  | 2                          | 2,200               | 1,900        |                                 |
| 13 |                  | 4                          | 4,250               | 3,800        | Light: Not working              |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              | High Voltage = 1158 Volts       |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              | 1000 uR/hr ≈ 212K CPM           |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|                           |   |  |  |
|---------------------------|---|--|--|
| Instrument Calibrated by: |  | I certify that the above information is correct: |  |
| Calibration Date:         | <u>09-27-95</u> (Signed)  |  | <u>09-27-95</u>  |
| Next Calibration Due:     | <u>12-27-95</u>   | Administrative Coordinator                       | Date   |



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# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |   |
|----------------------|---|-------------------------|---|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>   |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>PRM-7</u> Serial Number <u>234</u>                             |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | Serial # _____  |
| Work Order #         | <u>I-95-06-213</u>                                  | Calibration Method      | <u>137</u> <u>Pulser s/n 120935</u><br><u>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | 25 uR/hr         | 1.72K CPM                  | 8 uR/hr             | 10 uR/hr     | All Calibrations Btn. + & - 10% |
| 2  |                  | 3.44K                      | 16                  | 20           |                                 |
| 3  | 50               | 1.72K                      | 8.5                 | 10           | Battery Check: OK               |
| 4  |                  | 6.88K                      | 33                  | 39           |                                 |
| 5  | 500              | 0.1 mR/hr                  | 100                 | 100          | Mechanical zero: OK             |
| 6  |                  | 0.2                        | 200                 | 200          |                                 |
| 7  |                  | 0.4                        | 370                 | 370          |                                 |
| 8  | 5000             | 1                          | 850                 | 1,000        | Response: OK                    |
| 9  |                  | 2                          | 1,700               | 1,950        |                                 |
| 10 |                  | 4                          | 3,350               | 3,850        |                                 |
| 11 |                  |                            |                     |              | Reset: OK                       |
| 12 |                  |                            |                     |              |                                 |
| 13 |                  |                            |                     |              |                                 |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: William Owens  
 Calibration Date: 06-21-95 (Signed)  
 Next Calibration Due: 09-21-95

I certify that the above information is correct:  
William Owens 06-21-95  
 Administrative Coordinator Date





**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION  | INSTRUMENT INFORMATION   |
|---|--|
| Customer Name: <u>Westinghouse</u>                                    | Instrument Manufacturer <u>Eberline</u>                                      |
| Customer Address: <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model <u>PRM-7</u> Serial Number <u>234</u>                                  |
| Customer P.O.# <u>MB-14027-S</u>                                      | External Probe(s) _____ Serial # _____                                       |
| Work Order # <u>I-95-03-213</u>                                       | Calibration Method <u>137Cs s/n 101500</u><br><u>Pulser s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | 25 uR/hr         | 2.1K CPM                   | 10 uR/hr            | 10 uR/hr     | All Calibrations Btn. + & - 10% |
| 2  |                  | 4.2K                       | 20                  | 20           |                                 |
| 3  |                  |                            |                     |              | Battery Check: OK               |
| 4  | 50               | 2.1K                       | 10                  | 10           |                                 |
| 5  |                  | 8.4K                       | 40                  | 40           | Mechanical Zero: OK             |
| 6  |                  |                            |                     |              |                                 |
| 7  | 500              | 0.1 mR/hr                  | 100                 | 100          | Response: OK                    |
| 8  |                  | 0.2                        | 200                 | 200          |                                 |
| 9  |                  | 0.4                        | 380                 | 380          | Reset: OK                       |
| 10 |                  |                            |                     |              |                                 |
| 11 | 5000             | 1                          | 1,000               | 1,000        | Speaker: OK                     |
| 12 |                  | 2                          | 2,000               | 2,000        |                                 |
| 13 |                  | 4                          | 3,800               | 3,800        | 1000 uR/hr = 210K CPM           |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              | High Voltage = 1150 Volts       |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|   |  |
|---|--|
| Instrument Calibrated by: <u>James Christopher</u><br><small>(Signed)</small><br>Calibration Date: <u>03-29-95</u><br>Next Calibration Due: <u>06-29-95</u> | I certify that the above information is correct:<br><u>James Christopher</u><br>Administrative Coordinator<br>Date <u>03-29-95</u> |
|---|--|



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |  |
|----------------------|---|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>  |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model                   | <u>PRM-7</u> Serial Number <u>234</u>                                |
| Customer P.O.#       | <u>MB-14027-S</u>                                   | External Probe(s)       | Serial # _____   |
| Work Order #         | <u>I-94-12-219</u>                                  | Calibration Method      | <u><sup>137</sup>Pulser s/n 101500</u><br><u>Cs s/n 10263 200mCi</u> |

### INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | 25               | 2.2K CPM                   | 12 uR/hr            | 10 uR/hr     | All Calibrations Btn. + & - 10% |
| 2  |                  | 4.4K                       | 24                  | 20.5         |                                 |
| 3  |                  |                            |                     |              | Battery Check: OK               |
| 4  | 50               | 2.2K                       | 12                  | 10           |                                 |
| 5  |                  | 8.8K                       | 48                  | 42           | Mechanical Zero: OK             |
| 6  |                  |                            |                     |              |                                 |
| 7  | 500              | 0.1 mR/hr                  | 105                 | 105          | Response: OK                    |
| 8  |                  | 0.2                        | 210                 | 210          |                                 |
| 9  |                  | 0.4                        | 410                 | 410          | Reset: OK                       |
| 10 |                  |                            |                     |              |                                 |
| 11 | 5000             | 1                          | 1,200               | 1,000        | Speaker: OK                     |
| 12 |                  | 2                          | 2,400               | 1,900        |                                 |
| 13 |                  | 4                          | 4,850               | 3,750        | High Voltage = 1160 Volts       |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              | 1000 uR/hr = 220K CPM           |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct:   |
| Calibration Date: <u>12-19-94</u>                        | <u>12-19-94</u>                                    |
| Next Calibration Due: <u>03-19-95</u>                    | Administrative Coordinator <u>[Signature]</u> Date |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION   | INSTRUMENT INFORMATION   |
|--|--|
| Customer Name: <u>Westinghouse</u>   | Instrument Manufacturer <u>Eberline</u>  |
| Customer Address: <u>Avneue A &amp; West Street</u><br><u>Pittsburgh, PA 15221</u> | Model <u>PRM-7</u> Serial Number <u>234</u>  |
| Customer P.O.# <u>MB-14027-S</u>   | External Probe(s) _____ Serial # _____   |
| Work Order # <u>I-94-09-219</u>  | Calibration Method <u>137</u> <u>Pulser s/n 101500</u><br><u>Cs s/n 10263 200mCi</u> |

### INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | 25 uR/hr         | 1.62K CPM                  | 10 uR/hr            | 10 uR/hr     | All Calibrations Btn. + & - 10% |
| 2  |                  | 3.24K                      | 20                  | 20           |                                 |
| 3  |                  |                            |                     |              | Battery Check: OK               |
| 4  | 50               | 1.62K                      | 10                  | 10           |                                 |
| 5  |                  | 6.48K                      | 40                  | 40           | Mechanical zero: OK             |
| 6  |                  |                            |                     |              |                                 |
| 7  | 500              | 0.1 mR/hr                  | 105                 | 105          | Response: OK                    |
| 8  |                  | 0.2                        | 210                 | 210          |                                 |
| 9  |                  | 0.4                        | 400                 | 400          | Reset: OK                       |
| 10 |                  |                            |                     |              |                                 |
| 11 | 5000             | 1                          | 1,000               | 1,000        | Speaker: OK                     |
| 12 |                  | 2                          | 2,100               | 2,100        |                                 |
| 13 |                  | 4                          | 4,200               | 4,200        | High Voltage = 1157 Volts       |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              | 1000 uR/hr = 162K CPM           |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |   |
|--|---|
| Instrument Calibrated by: <u>James Christopher</u><br>Calibration Date: <u>09-16-94</u><br>Next Calibration Due: <u>12-16-94</u> | I certify that the above information is correct:<br><u>Shirley M. Beck</u><br>Administrative Coordinator Date <u>09-16-94</u> |
|--|---|



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |  |
|----------------------|---|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>   | Instrument Manufacturer | <u>Eberline</u>  |
| Customer Address:    | <u>Avenue A &amp; West Street</u><br><u>Pittsburgh, PA15221</u> | Model                   | <u>PRM-7</u> Serial Number <u>234</u>                      |
| Customer P.O.#       | <u>MB-14027-S</u>   | External Probe(s)       | Serial # _____   |
| Work Order #         | <u>I-94-05-222</u>  | Calibration Method      | <u>137 Cs s/n 10263 200mC:</u><br><u>Pulser s/n 101500</u> |

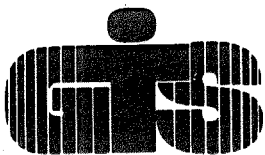
## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | 25 uR/hr         | 1.6K CPM                   | 10 uR/hr            | 10 uR/hr     | All Calibrations Btn. + & - 10% |
| 2  |                  | 3.2K                       | 20                  | 20           |                                 |
| 3  |                  |                            |                     |              | Battery Check: OK               |
| 4  | 50               | 1.6K                       | 10                  | 10           |                                 |
| 5  |                  | 6.4K                       | 40                  | 40           | Reset: OK                       |
| 6  |                  |                            |                     |              |                                 |
| 7  | 500              | 0.1 mR/hr                  | 100                 | 100          | Response: OK                    |
| 8  |                  | 0.2                        | 200                 | 200          |                                 |
| 9  |                  | 0.4                        | 380                 | 380          | Speaker: OK                     |
| 10 |                  |                            |                     |              |                                 |
| 11 | 5000             | 1                          | 1,000               | 1,000        | High Voltage = 1147 Volts       |
| 12 |                  | 2                          | 2,050               | 2,050        |                                 |
| 13 |                  | 4                          | 4,100               | 4,100        | 1000uR/hr = 160K CPM            |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              |                                 |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct: |
| Calibration Date: <u>06-02-94</u>                        | <u>[Signature]</u> <u>06-02-94</u>               |
| Next Calibration Due: <u>09-02-94</u>                    | Administrative Coordinator Date                  |



GTS Instrument Services  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION   | INSTRUMENT INFORMATION  |
|--|---|
| Customer Name: <u>Westinghouse Electric</u>  | Instrument Manufacturer <u>Eberline</u>   |
| Customer Address: <u>Avenue A &amp; West Street</u><br><u>Pittsburgh, PA 15221</u> | Model <u>PRM-7</u> Serial Number <u>234</u>   |
| Customer P.O.# <u>MB-14027-S</u>   | External Probe(s) _____ Serial # _____  |
| Work Order # <u>I-94-02-217</u>  | Calibration Method <u><sup>137</sup>Cs s/n 10263 200mCi</u><br><u>Pulser s/n 101500</u> |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                         |
|----|------------------|----------------------------|---------------------|--------------|---------------------------------|
|    |                  |                            | Before Calib.       | After Calib. |                                 |
| 1  | 25 uR/hr         | 1.6K CPM                   |                     | 10 uR/hr     | All Calibrations Btn. + & - 10% |
| 2  |                  | 3.2                        |                     | 20           |                                 |
| 3  |                  |                            |                     |              | Mechanical Zero: OK             |
| 4  | 50 uR/hr         | 1.6K                       |                     | 10           |                                 |
| 5  |                  | 6.4K                       |                     | 40           | Battery Check: OK               |
| 6  |                  |                            |                     |              |                                 |
| 7  | 500 uR/hr        | 0.1 mR/hr                  |                     | 100          | Speaker: OK                     |
| 8  |                  | 0.2                        |                     | 200          |                                 |
| 9  |                  | 0.4                        |                     | 390          | Reset: OK                       |
| 10 |                  |                            |                     |              |                                 |
| 11 | 5000 uR/hr       | 1                          |                     | 1,000        | Response: OK                    |
| 12 |                  | 2                          |                     | 2,050        |                                 |
| 13 |                  | 4                          |                     | 4,100        | High Voltage = 1140 Volts       |
| 14 |                  |                            |                     |              |                                 |
| 15 |                  |                            |                     |              | 1000 uR = 160K CPM              |
| 16 |                  |                            |                     |              |                                 |
| 17 |                  |                            |                     |              |                                 |
| 18 |                  |                            |                     |              |                                 |
| 19 |                  |                            |                     |              |                                 |
| 20 |                  |                            |                     |              |                                 |
| 21 |                  |                            |                     |              |                                 |
| 22 |                  |                            |                     |              |                                 |
| 23 |                  |                            |                     |              |                                 |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: James Christopher  
 (Signed)  
 Calibration Date: 02-24-94  
 Next Calibration Due: 05-24-94

I certify that the above information is correct:  
Thomas Wilber  
 Administrative Coordinator  
 Date 02-24-94



HEALTH PHYSICS inc.

2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|   |                                |
|---|--------------------------------|
| SHIPPING ADDRESS                                | BILLING ADDRESS (If Different) |
| WEC<br>AVE "A" + WEST ST<br>PITTSBURGH PA 15112 | SAME                           |

CONTACT: L. SMITH PHONE: (412) 835-3674 DATE: 11/12/93 P.O.# MA 89 5205

Receiving Comments:

Instrument Received:  Within Toler.  $\pm 10\%$    $\pm 10-20\%$   Out Toler.  Requires Repair

Mfg. Inst. EBERLINE Model # PRM-7 Serial # 23A  
 Detector " " Model # " Serial # INT 65

CALIBRATION  REPAIR  SALE  LOAN By: [Signature]

| scale       | source | reading      | scale       | source    | reading     | scale       | source      | reading |
|-------------|--------|--------------|-------------|-----------|-------------|-------------|-------------|---------|
| <u>200</u>  | mR/hr  | <u>URINE</u> | <u>MP50</u> | mR/hr     | <u>MP50</u> | <u>500</u>  | mR/hr       |         |
|             | .1     | 110          |             |           |             |             |             |         |
| <u>500</u>  | .1     | 410          | <u>25</u>   | <u>2K</u> | 12          | <u>500</u>  | <u>40K</u>  | 240     |
|             |        |              |             |           |             |             |             |         |
| <u>5000</u> | 1      | 1100         | <u>50</u>   | <u>4K</u> | 24          | <u>5000</u> | <u>400K</u> | 2350    |
|             | 4      | 3750         |             |           |             |             |             |         |

Calibration Source:  GAMMA  ALPHA  BETA  ELECTRONIC  OTHER

Description:  ra-226  cs-137  pu-239  sr-90  mp-1

|   |  |
|---|--|
| RESPONSE GRAPH <u>NA</u><br><br>TEMP/HUMIDITY <u>71.7°F / 36%</u> | PROBE EFFICIENCIES<br>Alpha _____ % Beta _____ %<br>Check Source Reading <u>NA</u><br>Battery Check Reading <u>72.5</u><br>Detector Angle <u>PERPENDICULAR</u><br>Corrections <u>NA</u> $\pm 10\%$ |
|---|--|

Maintenance & Comments: REPAIRS (2) WELLS ADD'D OK  
HV OK (2) 1075

|             |                  |              |   |                      |
|-------------|------------------|--------------|---|----------------------|
| CALIBRATION |                  | <u>40.00</u> | QA Dept. <u>[Signature]</u>                 | Warranty             |
| LABOR       |                  |              | Shipping <u>UPS</u>                         | Date <u>11/12/93</u> |
| MATERIALS   | <u>(2) D LOW</u> | <u>1.500</u> | Pick-Up                                     | Date <u>/ /</u>      |
| &           |                  | <u>3.00</u>  | This Certificate Expires In <u>3 Months</u> |                      |
| SALES       |                  |              | Re-Calibrate On Or Before <u>2/12/94</u>    |                      |
| SHIPPING    | <u>UPS</u>       |              | Job ID #                                    |                      |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.



HEALTH PHYSICS inc.

2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|   |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
|---|----------------------------|--------------|------------|----------------------------|---|------------|--------------|--------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|----------------------------|--|--|--|--|
| SHIPPING ADDRESS  |                            |              |            |                            | BILLING ADDRESS (If Different)              |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| W. E. C.<br>Ave. "A" & West St.<br>Pgh., PA 15112   |                            |              |            |                            | SAME  |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| CONTACT: <u>L. Smith</u> PHONE: <u>(—) 509-3674</u> DATE: <u>8/11/93</u> P.O.# <u>MA2939ES</u>  |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| Receiving Comments: <u>Calibration, Handle Broken!</u>  |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| Instrument Received: <input checked="" type="checkbox"/> Within Toler. $\pm 10\%$ <input type="checkbox"/> $\pm 10-20\%$ <input type="checkbox"/> Out Toler. <input type="checkbox"/> Requires Repair   |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| Mfg. Inst. <u>Eberline</u> Model # <u>PRM-7</u> Serial # <u>234</u><br>Detector <u>Int-63</u> Model # _____ Serial # _____  |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| <input checked="" type="checkbox"/> CALIBRATION <input type="checkbox"/> REPAIR <input type="checkbox"/> SALE <input type="checkbox"/> LOAN By: <u>J. Douglas</u>   |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| scale   | source                     | reading      | scale      | source                     | reading                                     | scale      | source       | reading      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| <u>500</u>  | <u>mR/hr</u><br><u>CPM</u> | <u>MR/hr</u> | <u>500</u> | <u>mR/hr</u><br><u>CPM</u> | <u>MR/hr</u>                                | <u>500</u> | <u>mR/hr</u> | <u>MR/hr</u> |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| <u>25</u>   | <u>2K</u>                  | <u>12</u>    | <u>500</u> | <u>40K</u>                 | <u>240</u>                                  | <u>500</u> | <u>.1</u>    | <u>105</u>   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| <u>50</u>   | <u>1K</u>                  | <u>24</u>    | <u>500</u> | <u>400K</u>                | <u>2300</u>                                 | <u>500</u> | <u>.4</u>    | <u>410</u>   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
|   |                            |              |            |                            |   |            | <u>1</u>     | <u>1020</u>  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
|   |                            |              |            |                            |   |            | <u>4</u>     | <u>3700</u>  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| Calibration Source: <input checked="" type="checkbox"/> GAMMA <input type="checkbox"/> ALPHA <input type="checkbox"/> BETA <input checked="" type="checkbox"/> ELECTRONIC <input type="checkbox"/> OTHER  |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| Description: <input checked="" type="checkbox"/> ra-226 <input type="checkbox"/> cs-137 <input type="checkbox"/> pu-239 <input type="checkbox"/> sr-90 <input checked="" type="checkbox"/> mp-1/500   |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| RESPONSE GRAPH <u>N/A</u>   |                            |              |            |                            | PROBE EFFICIENCIES <u>N/A</u>               |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| <table border="1" style="width:100%; height: 40px;"> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table> |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Alpha _____ % Beta _____ % |  |  |  |  |
|   |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
|   |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
|   |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
|   |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| Check Source Reading <u>N/A</u>   |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| Battery Check Reading <u>22 MR/hr</u>   |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| Detector Angle <u>Parallel</u>  |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| Corrections <u>N/A <math>\pm 10\%</math></u>  |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| TEMP/HUMIDITY <u>69.4°F / 51 %</u>  |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| Maintenance & Comments <u>Replaced (1) D Mds, HV = 1075, Replaced (1) PRM-7 Handle, with PRM-6 Handle Disconnected light, returning (2) LMI 41-9 Probes # 778434 # 778440, Holding unit set 5545 for Eval. 1/1 Tested, Inspected &amp; Calibrated.</u>  |                            |              |            |                            |   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| CALIBRATION <u>Contract</u> <u>40.00</u>  |                            |              |            |                            | QA Dept. <u>JD</u> Warranty _____           |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| LABOR <u>1/11 MR</u> <u>60.00/HR</u> <u>15.00</u>   |                            |              |            |                            | Shipping <u>UPS</u> Date <u>7/12/93</u>     |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| MATERIALS <u>(2) D Mds</u> <u>1.50 ea.</u> <u>3.00</u>  |                            |              |            |                            | Pick-Up _____ Date <u>7/11</u>              |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| & <u>(1) PRM-6</u> <u>Handle</u> <u>16.00</u>   |                            |              |            |                            | This Certificate Expires In <u>3 Months</u> |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| SALES _____   |                            |              |            |                            | Re-Calibrate On Or Before <u>11/11/93</u>   |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |
| SHIPPING <u>UPS</u> <u>(3) Units</u> <u>15.83</u>   |                            |              |            |                            | Job ID # <u>534421</u>                      |            |              |              |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                            |  |  |  |  |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.



HEALTH PHYSICS inc.

2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|   |                                |
|---|--------------------------------|
| SHIPPING ADDRESS                                  | BILLING ADDRESS (If Different) |
| W. E. C.<br>211 Rte 51 South<br>Carrage, PA 15025 | same                           |

CONTACT: L. Smith PHONE: ( ) — DATE: 4/30/93 P.O.# MA 29328

Receiving Comments: Calibration.

Instrument Received:  Within Toler.  $\pm 10\%$    $\pm 10-20\%$   Out Toler.  Requires Repair

Mfg. Inst. Eberline Model # PRM-7 Serial # 234  
 Detector Int-6S Model # \_\_\_\_\_ Serial # \_\_\_\_\_

CALIBRATION  REPAIR  SALE  LOAN By: J. Douglas

| scale      | source                     | reading                    | scale       | source                     | reading                    | scale         | source                     | reading                    |
|------------|----------------------------|----------------------------|-------------|----------------------------|----------------------------|---------------|----------------------------|----------------------------|
| <u>500</u> | <u>mR/hr</u><br><u>cpm</u> | <u><math>\mu</math>R/h</u> | <u>500</u>  | <u>mR/hr</u><br><u>cpm</u> | <u><math>\mu</math>R/h</u> | <u>K1-226</u> | <u>mR/hr</u><br><u>cpm</u> | <u><math>\mu</math>R/h</u> |
| <u>25</u>  | <u>2K</u>                  | <u>12</u>                  | <u>500</u>  | <u>40K</u>                 | <u>240</u>                 | <u>500</u>    | <u>.1</u>                  | <u>109</u>                 |
| <u>50</u>  | <u>4K</u>                  | <u>24</u>                  | <u>5000</u> | <u>400K</u>                | <u>2300</u>                | <u>5000</u>   | <u>.4</u>                  | <u>410</u>                 |
|            |                            |                            |             |                            |                            |               | <u>1</u>                   | <u>1090</u>                |
|            |                            |                            |             |                            |                            |               | <u>4</u>                   | <u>3650</u>                |

Calibration Source:  GAMMA  ALPHA  BETA  ELECTRONIC  OTHER

Description:  ra-226  cs-137  pu-239  sr-90  mp-1/500

RESPONSE GRAPH N/A

PROBE EFFICIENCIES N/A

Alpha \_\_\_\_\_ % Beta \_\_\_\_\_ %  
 Check Source Reading N/A  
 Battery Check Reading 22  $\mu$ R/h  
 Detector Angle Parallel  
 Corrections N/A  $\pm 10\%$

TEMP/HUMIDITY 73.0°F / 42 %

Maintenance & Comments Replaced (2) D Cells, HV-OK (a) 1980, Audio-OK.

Tested, Inspected & Calibrated

|             |                    |                 |   |                       |
|-------------|--------------------|-----------------|---|-----------------------|
| CALIBRATION | <u>Contract</u>    | <u>40.00</u>    | QA Dept. <u>JD</u>                          | Warranty _____        |
| LABOR       |                    |                 | Shipping <u>UPS</u>                         | Date <u>4/30/93</u>   |
| MATERIALS   | <u>(2) D Cells</u> | <u>1.50 ea</u>  | Pick-Up _____                               | Date <u>7/7</u>       |
| &           |                    |                 | This Certificate Expires In <u>3 Months</u> |                       |
| SALES       |                    |                 | Re-Calibrate On Or Before <u>7/30/93</u>    |                       |
| SHIPPING    | <u>UPS</u>         | <u>(1) Unit</u> | <u>6.25</u>                                 | Job ID # <u>52238</u> |

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**CODE NUMBER 24**

**REPORT #001**



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |  |
|----------------------|---|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Eberline</u>                          |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15221</u> | Model                   | <u>PRS-1</u> Serial Number <u>346</u>    |
| Customer P.O.#       | <u>WB-14027-S</u>                                   | External Probe(s)       | <u>SPA</u> Serial # _____                |
| Work Order #         | <u>I-96-07-208</u>                                  | Calibration Method      | <u>137Cs s/n 120935</u><br><u>200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                                       |
|----|------------------|----------------------------|---------------------|--------------|---|
|    |                  |                            | Before Calib.       | After Calib. |   |
| 1  | DIGITAL RATE     | 100 CPM                    | 100 CPM             | 100 CPM      | All Calibrations Btn. + & - 10%               |
| 2  |                  | 200                        | 201                 | 201          |   |
| 3  |                  | 400                        | 402                 | 402          | Battery: OK                                   |
| 4  |                  | 1K                         | 1,002               | 1,002        |   |
| 5  |                  | 2K                         | 2,008               | 2,008        | Response: OK                                  |
| 6  |                  | 4K                         | 4,019               | 4,019        |   |
| 7  |                  | 10K                        | 10,017              | 10,017       | Reset: OK                                     |
| 8  |                  | 20K                        | 20,067              | 20,067       |   |
| 9  |                  | 40K                        | 40,269              | 40,269       | Speaker: OK                                   |
| 10 |                  | 100K                       | 100,010             | 100,010      |   |
| 11 |                  | 200K                       | 200,010             | 200,010      | Light: OK                                     |
| 12 |                  | 400K                       | 400,000             | 400,000      | Threshold = 10mV                              |
| 13 |                  |                            |                     |              |   |
| 14 | SCALER           |                            |                     |              |   |
| 15 | 0.5 MIN          | 20K                        | 10,039              | 10,039       | (0.74 on dial)                                |
| 16 | 1                | 20K                        | 20,086              | 20,086       | Calibrated in gross mode only                 |
| 17 | 2                | 20K                        | 40,160              | 40,160       |   |
| 18 | 5                | 20K                        | 100,352             | 100,352      | High Voltage = 790 Volts                      |
| 19 |                  |                            |                     |              |   |
| 20 |                  |                            |                     |              | 1 mR/hr = 871K CPM in <sup>137</sup> Cs field |
| 21 |                  |                            |                     |              | with probe facing source                      |
| 22 |                  |                            |                     |              |   |
| 23 |                  |                            |                     |              |   |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: William Owen  
 (Signed)  
 Calibration Date: 07-11-96  
 Next Calibration Due: 10-11-96

I certify that the above information is correct:  
Shawn Miller 07-11-96  
 Administrative Coordinator Date



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION   |   |
|----------------------|---|--------------------------|---|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer: | <u>Eberline</u>   |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model:                   | <u>PRS-1</u> Serial Number <u>346</u>                             |
| Customer P.O.#:      | <u>MB-14027-S</u>                                   | External Probe(s):       | <u>SPA</u> Serial # _____   |
| Work Order #:        | <u>I-96-03-210</u>                                  | Calibration Method:      | <u>137</u> Pulser s/n <u>I20935</u><br>Cs s/n <u>I0263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment   |
|------------------|----------------------------|---------------------|--------------|---|
|                  |                            | Before Calib.       | After Calib. |   |
| 1 DIGITAL        | 100 CPM                    | 100 CPM             | 100 CPM      | All Calibrations Btn. + & - 10%                       |
| 2 RATE           | 200                        | 200                 | 200          |   |
| 3                | 400                        | 399                 | 399          | Battery: OK   |
| 4                | 1K                         | 994                 | 994          |   |
| 5                | 2K                         | 1,993               | 1,993        | Response: OK  |
| 6                | 4K                         | 3,987               | 3,987        |   |
| 7                | 10K                        | 9,934               | 9,934        | Reset: OK   |
| 8                | 20K                        | 19,934              | 19,934       |   |
| 9                | 40K                        | 39,736              | 39,736       | Speaker: OK   |
| 10               | 100K                       | 99,340              | 99,340       |   |
| 11               | 200K                       | 199,340             | 199,340      | Light: OK   |
| 12               | 400K                       | 397,360             | 397.360      |   |
| 13 SCALER        |                            |                     |              | Threshold $\approx$ 10mV = 0.74 on dial               |
| 14 0.5 MIN       | 20K                        | 9,987               | 9,987        |   |
| 15 1             | 20K                        | 19,980              | 19,980       | High Voltage = 790 Volts                              |
| 16 2             | 20K                        | 39,985              | 39,985       |   |
| 17 5             | 20K                        | 100,047             | 100,047      | 1 mR/hr $\approx$ 878K CPM in <sup>137</sup> Cs field |
| 18               |                            |                     |              |   |
| 19               |                            |                     |              | Calibrated in gross mode only                         |
| 20               |                            |                     |              |   |
| 21               |                            |                     |              |   |
| 22               |                            |                     |              |   |
| 23               |                            |                     |              |   |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: [Signature]  
 Calibration Date: 03-11-96 (Signed)  
 Next Calibration Due: 06-11-96

I certify that the above information is correct:  
[Signature] 03-11-96  
 Administrative Coordinator Date



GTS Instrument Services  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |   | INSTRUMENT INFORMATION  |  |
|----------------------|---|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>                                 | Instrument Manufacturer | <u>Sberline</u>  |
| Customer Address:    | <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15221</u> | Model                   | <u>PRS-1</u> Serial Number <u>146</u>                            |
| Customer P.O.#       | <u>BB-14027-S</u>                                   | External Probe(s)       | <u>SPA</u> Serial # _____  |
| Work Order #         | <u>I-95-11-210</u>                                  | Calibration Method      | <u>137Cs s/n 296 &amp; 1200</u><br><u>137Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment   |
|------------------|----------------------------|---------------------|--------------|---|
|                  |                            | Before Calib.       | After Calib. |   |
| 1 RATEMETER      | 100 CPM                    | 100 CPM             | 100 CPM      | All Calibrations Btn. + & - 10%                       |
| 2                | 200                        | 200                 | 200          |   |
| 3                | 400                        | 400                 | 400          | Battery: OK   |
| 4                | 1K                         | 1,000               | 1,000        |   |
| 5                | 2K                         | 2,000               | 2,000        | Response: OK  |
| 6                | 4K                         | 4,000               | 4,000        |   |
| 7                | 10K                        | 10,000              | 10,000       | Light: OK   |
| 8                | 20K                        | 20,000              | 20,000       |   |
| 9                | 40K                        | 40,000              | 40,000       | Speaker: OK   |
| 10               | 100K                       | 100,000             | 100,000      |   |
| 11               | 200K                       | 200,000             | 200,000      | Reset: OK   |
| 12               | 400K                       | 400,000             | 400,000      |   |
| 13               |                            |                     |              | Threshold $\approx$ 10mV = 0.74 on dial               |
| 14 SCALER        |                            |                     |              |   |
| 15 0.5 MIN       | 20K                        | 10,000              | 10,000       | High Voltage = 790 Volts                              |
| 16               |                            |                     |              |   |
| 17 1             | 20K                        | 40,000              | 20,000       | 1 mR/hr $\approx$ 876K CPM in <sup>137</sup> Cs field |
| 18               |                            |                     |              |   |
| 19 2             | 20K                        | 40,000              | 40,000       | Calibrated in Gross Mode only                         |
| 20               |                            |                     |              |   |
| 21 5             | 20K                        | 100,000             | 100,000      |   |
| 22               |                            |                     |              |   |
| 23               |                            |                     |              |   |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u> | I certify that the above information is correct: |
| Calibration Date: <u>12-05-95</u> (Signed)   | <u>[Signature]</u> 12-05-95                      |
| Next Calibration Due: <u>03-05-96</u>        | Administrative Coordinator Date                  |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |                                       | INSTRUMENT INFORMATION  |                                  |
|----------------------|---------------------------------------|-------------------------|----------------------------------|
| Customer Name:       | Westinghouse                          | Instrument Manufacturer | Eberline                         |
| Customer Address:    | P.O. Box 3700<br>Pittsburgh, PA 15230 | Model                   | PRS-1 Serial Number 346          |
|                      |                                       | External Probe(s)       | SPA Serial #                     |
| Customer P.O.#       | MB-14027-S                            | Calibration Method      | <sup>137</sup> Pulser s/n 101500 |
| Work Order #         | I-95-08-211                           |                         | Cs s/n 10263 200mCi              |

## INSTRUMENT CALIBRATION INFORMATION

|    | Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                                       |
|----|------------------|----------------------------|---------------------|--------------|---|
|    |                  |                            | Before Calib.       | After Calib. |   |
| 1  | RATE             | 100 CPM                    | 100 CPM             | 100 CPM      | All Calibrations Btn. + & - 10%               |
| 2  |                  | 200                        | 201                 | 201          |   |
| 3  |                  | 400                        | 401                 | 401          | Battery: OK                                   |
| 4  |                  | 1K                         | 1,000               | 1,000        |   |
| 5  |                  | 2K                         | 2,000               | 2,000        | Response: OK                                  |
| 6  |                  | 4K                         | 4,001               | 4,001        |   |
| 7  |                  | 10K                        | 10,000              | 10,000       | Reset: OK                                     |
| 8  |                  | 20K                        | 20,000              | 20,000       |   |
| 9  |                  | 40K                        | 40,000              | 40,000       | Light: OK                                     |
| 10 |                  | 100K                       | 100,000             | 100,000      |   |
| 11 |                  | 200K                       | 200,000             | 200,000      | Speaker: OK                                   |
| 12 |                  | 400K                       | 400,000             | 400,000      |   |
| 13 |                  |                            |                     |              | Threshold ≈ 10mV = 8.40 on dial               |
| 14 | SCALER           |                            |                     |              |   |
| 15 | 0.5 MIN          | 20K                        | 9,994               | 9,994        | High Voltage = 800 Volts                      |
| 16 |                  |                            |                     |              |   |
| 17 | 1                | 20K                        | 19,994              | 19,994       | 1 mR/hr ≈ 875K CPM in <sup>137</sup> Cs field |
| 18 |                  |                            |                     |              |   |
| 19 | 2                | 20K                        | 40,007              | 40,007       | Calibrated in Gross Mode only                 |
| 20 |                  |                            |                     |              |   |
| 21 | 5                | 20K                        | 100,000             | 100,000      |   |
| 22 |                  |                            |                     |              |   |
| 23 |                  |                            |                     |              |   |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|                           |                   |  |          |
|---------------------------|-------------------|--|----------|
| Instrument Calibrated by: |                   | I certify that the above information is correct: |          |
| Calibration Date:         | 08-24-95 (Signed) |  | 08-24-95 |
| Next Calibration Due:     | 11-24-95          | Administrative Coordinator                       | Date     |



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

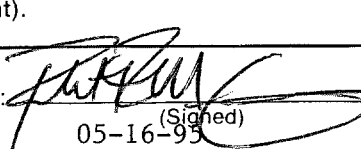
| CUSTOMER INFORMATION |                                       | INSTRUMENT INFORMATION  |                       |
|----------------------|---------------------------------------|-------------------------|-----------------------|
| Customer Name:       | Westinghouse                          | Instrument Manufacturer | Eberline              |
| Customer Address:    | P.O. Box 3700<br>Pittsburgh, PA 15230 | Model                   | PRS-1                 |
|                      |                                       | Serial Number           | 346                   |
|                      |                                       | External Probe(s)       | SPA                   |
| Customer P.O.#       | MB-14027-S                            | Calibration Method      | 137 Pusler s/n 101500 |
| Work Order #         | I-95-05-220                           |                         | Cs s/n 10263 200mCi   |

### INSTRUMENT CALIBRATION INFORMATION

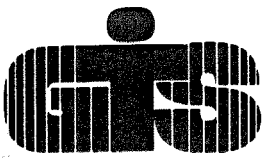
| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                                       |
|------------------|----------------------------|---------------------|--------------|---|
|                  |                            | Before Calib.       | After Calib. |   |
| 1 RATE           | 100 CPM                    | 101 CPM             | 101 CPM      | All Calibrations Btn. + & - 10%               |
| 2                | 200                        | 201                 | 201          |   |
| 3                | 400                        | 402                 | 402          | Battery: OK                                   |
| 4                | 1K                         | 1,002               | 1,002        |   |
| 5                | 2K                         | 2,003               | 2,003        | Response: OK                                  |
| 6                | 4K                         | 4,014               | 4,014        |   |
| 7                | 10K                        | 10,017              | 10,017       | Light: OK                                     |
| 8                | 20K                        | 20,067              | 20,067       |   |
| 9                | 40K                        | 40,269              | 40,269       | Reset: OK                                     |
| 10               | 100K                       | 100,010             | 100,010      |   |
| 11               | 200K                       | 200,010             | 200,010      | Speaker: OK                                   |
| 12               | 400K                       | 400,269             | 400,269      |   |
| 13               |                            |                     |              | Threshold = 10mV = 8.4 on dial                |
| 14 SCALER        |                            |                     |              |   |
| 15 0.5 MIN       | 20K                        | 10,025              | 10,025       | High Voltage = 795 Volts                      |
| 16               |                            |                     |              |   |
| 17 1 MIN         | 20K                        | 20,032              | 20,032       | Calibration in Gross Mode Only                |
| 18               |                            |                     |              |   |
| 19 2 MIN         | 20K                        | 40,089              | 40,089       | 1 mR/hr = 880K CPM in <sup>137</sup> Cs field |
| 20               |                            |                     |              |   |
| 21 5 MIN         | 20K                        | 100,190             | 100,190      |   |
| 22               |                            |                     |              |   |
| 23               |                            |                     |              |   |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by:   
 (Signed)  
 Calibration Date: 05-16-95  
 Next Calibration Due: 08-16-95

I certify that the above information is correct:  
  
 Administrative Coordinator  
 Date: 05-16-95



**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION  | INSTRUMENT INFORMATION  |
|---|---|
| Customer Name: <u>Westinghouse</u>                                    | Instrument Manufacturer <u>Eberline</u>   |
| Customer Address: <u>P.O. Box 3700</u><br><u>Pittsburgh, PA 15230</u> | Model <u>PRS-1</u> Serial Number <u>346</u>   |
| Customer P.O.# <u>MB-14027-S</u>                                      | External Probe(s) <u>SPA</u> Serial # _____   |
| Work Order # <u>I-94-11-218</u>                                       | Calibration Method <u><sup>137</sup>Pulser s/n 101500</u><br><u>Cs s/n 10263 200mCi</u> |

### INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment  |
|------------------|----------------------------|---------------------|--------------|--|
|                  |                            | Before Calib.       | After Calib. |  |
| 1 RATE           | 100 CPM                    | 100 CPM             | 100 CPM      | All Calibrations Btn. + & - 10%                |
| 2                | 200                        | 200                 | 200          |  |
| 3                | 400                        | 399                 | 399          | Battery Check: OK                              |
| 4                | 1K                         | 995                 | 995          |  |
| 5                | 2K                         | 1,997               | 1,997        | Response: OK                                   |
| 6                | 4K                         | 3,990               | 3,990        |  |
| 7                | 10K                        | 9,934               | 9,934        | Light: OK                                      |
| 8                | 20K                        | 19,934              | 19,934       |  |
| 9                | 40K                        | 39,737              | 39,737       | Reset: OK                                      |
| 10               | 100K                       | 99,510              | 99,510       |  |
| 11               | 200K                       | 199,340             | 199,340      | Speaker: OK                                    |
| 12               | 400K                       | 397,350             | 397,350      |  |
| 13               |                            |                     |              | Threshold = 10mV = 0.84 on dial                |
| 14 SCALER        |                            |                     |              |  |
| 15 0.5 MIN       | 20K CPM                    | 9,978               | 9,978        | 1 mR/hr = 850 K CPM in <sup>137</sup> Cs field |
| 16               |                            |                     |              |  |
| 17 1             | 20K                        | 19,895              | 19,895       | High Voltage = 795 Volts                       |
| 18               |                            |                     |              |  |
| 19 2             | 20K                        | 39,913              | 39,913       | Calibrated in Gross mode only                  |
| 20               |                            |                     |              |  |
| 21 5             | 20K                        | 99,771              | 97,771       |  |
| 22               |                            |                     |              |  |
| 23               |                            |                     |              |  |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u><br>(Signed) | I certify that the above information is correct:<br><u>[Signature]</u> |
| Calibration Date: <u>11-29-94</u>                        | <u>11-29-94</u>  |
| Next Calibration Due: <u>02-28-95</u>                    | Administrative Coordinator <u>[Signature]</u> Date                     |



GTS Instrument Services  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |  | INSTRUMENT INFORMATION  |  |
|----------------------|--|-------------------------|--|
| Customer Name:       | <u>Westinghouse</u>  | Instrument Manufacturer | <u>Eberline</u>  |
| Customer Address:    | <u>Avenue A &amp; West Street<br/>Pittsburgh, PA 15221</u> | Model                   | <u>PRS-1</u> Serial Number <u>346</u>                          |
| Customer P.O.#       | <u>MB-14027-S</u>  | External Probe(s)       | <u>SPA-3</u> Serial # _____                                    |
| Work Order #         | <u>I-94-08-218</u>   | Calibration Method      | <u><sup>137</sup>Pulser s/n 101500<br/>Cs s/n 10263 200mCi</u> |

## INSTRUMENT CALIBRATION INFORMATION

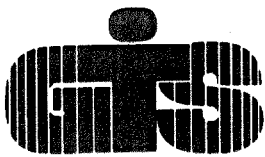
| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment   |
|------------------|----------------------------|---------------------|--------------|---|
|                  |                            | Before Calib.       | After Calib. |   |
| 1 RATE           | 100 CPM                    | 100 CPM             | 100 CPM      | All Calibrations Btn. + & - 10%                       |
| 2                | 200                        | 200                 | 200          |   |
| 3                | 400                        | 400                 | 400          | Battery Check: OK                                     |
| 4                | 1K                         | 999                 | 999          |   |
| 5                | 2K                         | 1,999               | 1,999        | Response: OK  |
| 6                | 4K                         | 4,000               | 4,000        |   |
| 7                | 10K                        | 9,984               | 9,984        | Light: OK   |
| 8                | 20K                        | 20,000              | 20,000       |   |
| 9                | 40K                        | 40,000              | 40,000       | High Voltage = 800 Volts                              |
| 10               | 100K                       | 99,840              | 99,840       |   |
| 11               | 200K                       | 200,000             | 200,000      | Speaker: OK   |
| 12               | 400K                       | 400,000             | 400,000      |   |
| 13               |                            |                     |              | 1 mR/hr $\approx$ 830K CPM in <sup>137</sup> Cs field |
| 14 SCALER        |                            |                     |              |   |
| 15 0.5 MIN       | 20K CPM                    | 9,991               | 9,991        | Threshold = 0.84 on dial = 10 mV                      |
| 16               |                            |                     |              |   |
| 17 1 MIN         | 20K                        | 19,982              | 19,982       | Calibrated in Gross Mode Only                         |
| 18               |                            |                     |              |   |
| 19 2 MIN         | 20K                        | 39,967              | 39,967       |   |
| 20               |                            |                     |              |   |
| 21 5 MIN         | 20K                        | 99,914              | 99,914       |   |
| 22               |                            |                     |              |   |
| 23               |                            |                     |              |   |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u> | I certify that the above information is correct: |
| Calibration Date: <u>08-26-94</u> (Signed)   | <u>[Signature]</u> 08-26-94                      |
| Next Calibration Due: <u>11-26-94</u>        | Administrative Coordinator Date                  |





**GTS Instrument Services**  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION |  | INSTRUMENT INFORMATION  |                                       |
|----------------------|--|-------------------------|---------------------------------------|
| Customer Name:       | <u>Westinghouse Electric</u>                               | Instrument Manufacturer | <u>Eberline</u>                       |
| Customer Address:    | <u>Avenue A &amp; West Street<br/>Pittsburgh, PA 15221</u> | Model                   | <u>PRS-1</u> Serial Number <u>346</u> |
|                      |  | External Probe(s)       | <u>SPA-3</u> Serial # _____           |
| Customer P.O.#       | <u>I-94-05-222</u>   | Calibration Method      | <u>137</u> Pulser s/n 101500          |
| Work Order #         | <u>MB-14027-S</u>  |                         | <u>Cs</u> s/n 10263 200mCi            |

### INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment                                       |
|------------------|----------------------------|---------------------|--------------|---|
|                  |                            | Before Calib.       | After Calib. |   |
| 1 RATE           | 100 CPM                    | 100 CPM             | 100 CPM      | All Calibrations Btn. + & - 10%               |
| 2                | 200                        | 201                 | 201          |   |
| 3                | 400                        | 402                 | 402          | Battery Check: OK                             |
| 4                | 1K                         | 1,000               | 1,000        |   |
| 5                | 2K                         | 2,000               | 2,000        | Response: OK                                  |
| 6                | 4K                         | 4,000               | 4,003        |   |
| 7                | 10K                        | 10,000              | 10,000       | Light: OK                                     |
| 8                | 20K                        | 20,000              | 20,000       |   |
| 9                | 40K                        | 40,000              | 40,000       | High Voltage = 782 Volts                      |
| 10               | 100K                       | 99,840              | 99,840       |   |
| 11               | 200K                       | 200,000             | 200,000      | 1 mR/hr = 830K CPM in <sup>137</sup> Cs field |
| 12               | 400K                       | 400,000             | 400,000      |   |
| 13               |                            |                     |              | Calibrated in Gross Mode Only                 |
| 14 SCALER        |                            |                     |              |   |
| 15 0.5 MIN       | 20K CPM                    | 10,013              | 10,013       | Speaker: OK                                   |
| 16               |                            |                     |              |   |
| 17 1 MIN         | 20K                        | 20,030              | 20,030       |   |
| 18               |                            |                     |              |   |
| 19 2 MIN         | 20K                        | 40,003              | 40,003       |   |
| 20               |                            |                     |              |   |
| 21 5 MIN         | 20K                        | 99,987              | 99,987       |   |
| 22               |                            |                     |              |   |
| 23               |                            |                     |              |   |

### STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

|  |  |
|--|--|
| Instrument Calibrated by: <u>[Signature]</u> | I certify that the above information is correct: |
| Calibration Date: <u>05-11-94</u> (Signed)   | <u>[Signature]</u> 05-11-94                      |
| Next Calibration Due: <u>08-11-94</u>        | Administrative Coordinator Date                  |



GTS Instrument Services  
 2045 Route 286  
 Pittsburgh, PA 15239-2839  
 412/733-1900 Fax: 412/327-8189

# CALIBRATION CERTIFICATE

#24

This Certificate will be accompanied by Calibration Charts or Readings where applicable

| CUSTOMER INFORMATION   | INSTRUMENT INFORMATION   |
|--|--|
| Customer Name: <u>Westinghouse Electric Corp.</u>                                  | Instrument Manufacturer <u>Eberline</u>  |
| Customer Address: <u>Avenue A &amp; West Street</u><br><u>Pittsburgh, PA 15221</u> | Model <u>PRS-1</u> Serial Number <u>346</u>  |
| Customer P.O.# <u>MB-14016-H</u>   | External Probe(s) <u>SPA-3</u> Serial # _____  |
| Work Order # <u>I-94-01-224</u>  | Calibration Method _____<br><u>137Cs s/n 10263 200mc</u><br><u>Pulser s/n 318</u><br><u>Electrostatic s/n ES-17225</u> |

## INSTRUMENT CALIBRATION INFORMATION

| Instrument Range | Calibration Standard Value | Instrument Response |              | Comment   |
|------------------|----------------------------|---------------------|--------------|---|
|                  |                            | Before Calib.       | After Calib. |   |
| 1 RATE           | 100 CPM                    | 100 CPM             | 100 CPM      | All Calibrations Btn. + & - 10%                       |
| 2                | 200                        | 200                 | 200          |   |
| 3                | 400                        | 400                 | 400          | Battery Check: OK                                     |
| 4                | 1K                         | 1,000               | 1,000        |   |
| 5                | 2K                         | 2,000               | 2,000        | Response: OK  |
| 6                | 4K                         | 4,000               | 4,000        |   |
| 7                | 10K                        | 10,000              | 10,000       | Light: OK   |
| 8                | 20K                        | 20,000              | 20,000       |   |
| 9                | 40K                        | 40,000              | 40,000       | High Voltage = 780 Volts                              |
| 10               | 100K                       | 100,000             | 100,000      |   |
| 11               | 200K                       | 200,000             | 200,000      | 1 mR/hr $\approx$ 830K CPM in <sup>137</sup> Cs field |
| 12               | 400K                       | 400,000             | 400,000      |   |
| 13               |                            |                     |              |   |
| 14 SCALER        |                            |                     |              |   |
| 15 0.5 MIN       | 20K                        | 10,000              | 10,000       |   |
| 16               |                            |                     |              |   |
| 17 1 MIN         | 20K                        | 19,999              | 19,999       |   |
| 18               |                            |                     |              |   |
| 19 2 MIN         | 20K                        | 40,000              | 40,000       |   |
| 20               |                            |                     |              |   |
| 21 5 MIN         | 20K                        | 99,999              | 99,999       |   |
| 22               |                            |                     |              |   |
| 23               |                            |                     |              |   |

## STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: [Signature]  
 Calibration Date: 01-31-94 (Signed)  
 Next Calibration Due: 04-30-94

I certify that the above information is correct:  
[Signature] 01-31-94  
 Administrative Coordinator Date



HEALTH PHYSICS inc.

2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

CERTIFICATE OF CALIBRATION

SHIPPING ADDRESS: WEC AVE "A" WEST ST PAH PA 15112; BILLING ADDRESS (If Different): SAME

CONTACT: L. SMITH PHONE: (-) 629-3674 DATE: 10/25/93 P.O. # MA 89320-5

Receiving Comments: CALIBRATION

Instrument Received: [X] Within Toler. ±10% [ ] ±10-20% [ ] Out Toler. [ ] Requires Repair

Mfg. Inst. EBERLINE Model # PRS-1 Serial # 396; Detector " Model # SPA-3 Serial # 400601

[X] CALIBRATION [ ] REPAIR [ ] SALE [ ] LOAN By: [Signature]

Table with columns: scale, source, reading, scale, source, reading, scale, source, reading. Includes handwritten data for counts per minute at various scales.

Calibration Source: [Y] GAMMA [ ] ALPHA [ ] BETA [X] ELECTRONIC [ ] OTHER

Description: [X] ra-226 [ ] cs-137 [ ] pu-239 [ ] sr-90 [X] mp-1/500 [ ]

RESPONSE GRAPH N/A

PROBE EFFICIENCIES: Alpha & Beta; Check Source Reading N/A; Battery Check Reading N/A; Detector Angle PARALLEL; Corrections N/A ± 10% ELECTRONIC

TEMP/HUMIDITY 70.2 °F / 45 %

Maintenance & Comments: BATTERIES OK HV OK AT 755

Summary table with rows: CALIBRATION (10.00), LABOR, MATERIALS (3 BNC 1' CABLES 32.60), SALES, SHIPPING (UPS 3 UNITS 20.39), QA Dept. (JP), Warranty, Shipping (UPS), Date (10/25/93), Pick-Up, Date, This Certificate Expires In (3 Months), Re-Calibrate On Or Before (1/25/94), Job ID #

Handwritten notes: Rec 10-27-93, UPS 186-596, 15#

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.





2986 Industrial Blvd. — Bethel Park, Pa. 15102 — Phone 412 — 835-9555 — Fax No. 412 — 835-9559

### CERTIFICATE OF CALIBRATION

|   |                                |
|---|--------------------------------|
| SHIPPING ADDRESS                              | BILLING ADDRESS (If Different) |
| WEC<br>Ave. "A" & W. Street<br>Pghy, PA 15112 | SAME                           |

CONTACT: J. Flanigan PHONE: ( ) — DATE: 7/14/93 P.O.# MA 2932ES

Receiving Comments: Calibration.

Instrument Received:  Within Toler.  $\pm 10\%$    $\pm 10-20\%$   Out Toler.  Requires Repair

Mfg. Inst. Eberline Model # PRS-1 Serial # 346  
 Detector " " Model # CPA-3 Serial # 408881

CALIBRATION  REPAIR  SALE  LOAN By: J. Douglas

| scale     | source                        | reading | scale     | source       | reading | scale     | source       | reading |
|-----------|-------------------------------|---------|-----------|--------------|---------|-----------|--------------|---------|
|           | mR/hr<br>cpm                  |         |           | mR/hr<br>cpm |         |           | mR/hr<br>cpm |         |
| <u>ON</u> | 100                           | 100     | <u>ON</u> | 4000         | 3998    | <u>ON</u> | 100000       | 98981   |
|           | 400                           | 400     |           | 10000        | 9979    |           | 400000       | 39711   |
|           | 1000                          | 999     |           | 40000        | 3991    |           |              |         |
|           | Eff $\approx$ 880 K cpm/mR/HR |         |           | Ra-226 Gamma |         |           |              |         |

Calibration Source:  GAMMA  ALPHA  BETA  ELECTRONIC  OTHER

Description:  ra-226  cs-137  pu-239  sr-90  mp-1/500

|                                   |   |
|-----------------------------------|---|
| RESPONSE GRAPH <u>N/A</u>         | PROBE EFFICIENCIES <u>N/A</u>                           |
|                                   | Alpha _____ & Beta _____ %                              |
|                                   | Check Source Reading <u>N/A</u>                         |
|                                   | Battery Check Reading <u>N/A</u>                        |
|                                   | Detector Angle <u>Parallel</u>                          |
|                                   | Corrections <u>N/A <math>\pm 10\%</math> Electronic</u> |
| TEMP/HUMIDITY <u>69.1°F / 43%</u> |   |

Maintenance & Comments Replaced (5) D Cells, NU-OK @ 750 Volts

|                              |  |                  |  |   |  |
|------------------------------|--|------------------|--|---|--|
| CALIBRATION <u>Contract</u>  |  | 40.00            |  | Tested, Inspected & Calibrated              |  |
| LABOR                        |  |                  |  | QA Dept. <u>W</u> Warranty _____            |  |
| MATERIALS <u>(5) D Cells</u> |  | 1,50.00          |  | Shipping <u>UPS</u> Date <u>7/14/93</u>     |  |
| &                            |  |                  |  | Pick-Up _____ Date <u>7/17</u>              |  |
| SALES                        |  |                  |  | This Certificate Expires In <u>3</u> Months |  |
| SHIPPING <u>UPS</u>          |  | <u>(4) Units</u> |  | Re-Calibrate On Or Before <u>10/14/93</u>   |  |
|                              |  | <u>26.02</u>     |  | Job ID # <u>52369</u>                       |  |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.

**CERTIFICATE OF CALIBRATION**

|   |                                |
|---|--------------------------------|
| SHIPPING ADDRESS  | BILLING ADDRESS (If Different) |
| Westinghouse Corp.<br>211 Rte 51 South<br>Largo, PA 15025 | SAME                           |

CONTACT: L. Smith PHONE: (—) DATE: 4/15/93 P.O.# PA 89328

Receiving Comments: Calibration.

|                            |  |  |                                     |  |
|----------------------------|--|--|-------------------------------------|--|
| Instrument Received:       | <input checked="" type="checkbox"/> Within Toler. $\pm 10\%$ | <input type="checkbox"/> $\pm 10-20\%$ | <input type="checkbox"/> Out Toler. | <input type="checkbox"/> Requires Repair |
| Mfg. Inst. <u>Eberline</u> | Model # <u>PRS-1</u>   | Serial # <u>346</u>                    |                                     |  |
| Detector <u>"</u>          | Model # <u>SPA-3</u>   | Serial # <u>408881</u>                 |                                     |  |

CALIBRATION     REPAIR     SALE     LOAN By: J. Douglas

| scale         | source                  | reading                    | scale     | source                  | reading | scale     | source                  | reading |
|---------------|-------------------------|----------------------------|-----------|-------------------------|---------|-----------|-------------------------|---------|
|               | <del>mR/hr</del><br>cpm | cpm                        |           | <del>mR/hr</del><br>cpm | cpm     |           | <del>mR/hr</del><br>cpm | cpm     |
| <u>on</u>     | 100                     | 100                        | <u>on</u> | 4000                    | 4010    | <u>on</u> | 10000                   | 99981   |
|               | 400                     | 400                        |           | 10000                   | 10017   |           | 40000                   | 399811  |
|               | 1000                    | 998                        |           | 40000                   | 39989   |           |                         |         |
| EFF $\approx$ |                         | 880Kcpm/mR/HR Ra-226 Gamma |           |                         |         |           |                         |         |

|                     |  |                                 |                                 |  |  |
|---------------------|--|---------------------------------|---------------------------------|--|--|
| Calibration Source: | <input checked="" type="checkbox"/> GAMMA  | <input type="checkbox"/> ALPHA  | <input type="checkbox"/> BETA   | <input checked="" type="checkbox"/> ELECTRONIC | <input type="checkbox"/> OTHER               |
| Description:        | <input checked="" type="checkbox"/> ra-226 | <input type="checkbox"/> cs-137 | <input type="checkbox"/> pu-239 | <input type="checkbox"/> sr-90                 | <input checked="" type="checkbox"/> mp-1/500 |

|                                     |   |
|-------------------------------------|---|
| RESPONSE GRAPH <u>N/A</u>           | PROBE EFFICIENCIES <u>N/A</u>                       |
|                                     | Alpha _____ & Beta _____ &                          |
|                                     | Check Source Reading <u>N/A</u>                     |
|                                     | Battery Check Reading <u>N/A</u>                    |
|                                     | Detector Angle <u>Parallel</u>                      |
|                                     | Corrections <u>N/A <math>\pm 10\%</math> Elect.</u> |
| TEMP/HUMIDITY <u>72.4 °F / 35 %</u> |   |

Maintenance & Comments Batteries OK, HV-OK @ 760V, Time-OK, Audio-OK

|   |                 |               |   |
|---|-----------------|---------------|---|
| <u>Tested, Inspected &amp; Calibrated</u> |                 |               |   |
| CALIBRATION                               | <u>Contract</u> | <u>40.00</u>  | QA Dept. <u>JJK</u> Warranty _____          |
| LABOR                                     |                 |               | Shipping <u>UPS</u> Date <u>4/15/93</u>     |
| MATERIALS                                 |                 |               | Pick-Up _____ Date <u>4/15</u>              |
| &   |                 |               | This Certificate Expires In <u>3</u> Months |
| SALES                                     |                 |               | Re-Calibrate On Or Before <u>7/15/93</u>    |
| SHIPPING                                  | <u>UPS</u>      | <u>1 Unit</u> | Job ID # <u>52192</u>                       |

NOTICE: Applied Health Physics, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology under Nuclear Regulatory Commission License #37-09135-01 and PA State License #PA-0228. This calibration system conforms to the requirements of NRC regulation 10-CFR-34, 10-CFR-35, MIL-STD 45662A and ANSI-STD N323-1978.

**CODE NUMBER 25**

**REPORT #001**



**Reuter-Stokes**

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## Calibration Certificate

Reuter-Stokes certifies that the Environmental Radiation Monitor, identified below, has been calibrated for output using the shadow shield technique\*, and calibrated with radiation sources traceable to the National Institute of Standards and Technology.

Sensor Type: 100 mR/Hr

Serial Number: L-2088

Calibration Date: 7/16/96

Sensitivity: 19.97 mV/ $\mu$ R/h

  
Authorized Signature

\* See Operating Manual for Details on technique.



# AS FOUND



Reuter-Stokes

## Calibration Data

Sensor Type: 100 mR/Hr Source (Cs-137): BB-400  
Serial Number: L-2088 Date of Certification: 12/1/94  
Calibration Date: 7/15/96 Exposure Rate at 1 meter: 4.226 mR/h  
Customer Name: WESTINGHOUSE  
Sensitivity (Ra-226): 19.46 mV/ $\mu$ R/h

| Distance |     | Exposure Rate | P+S+A | S+A   | P     | k(Cs-137)     |
|----------|-----|---------------|-------|-------|-------|---------------|
| Feet     | cm  | $\mu$ R/h     | V     | V     | V     | mV/ $\mu$ R/h |
| 12       | 366 | 298.825       | 7.487 | 1.591 | 5.895 | 19.73         |
| 14       | 427 | 218.637       | 5.702 | 1.394 | 4.308 | 19.70         |
| 16       | 488 | 166.701       | 4.514 | 1.244 | 3.270 | 19.62         |
| 18       | 549 | 131.170       | 3.700 | 1.121 | 2.579 | 19.66         |

$$k(\text{Cs-137}) = 19.68 \text{ mv}/\mu\text{R/h}$$

$$\bar{k} = 19.68 \text{ mv}/\mu\text{R/h}$$

$$k(\text{Ra-226}) = .9892 k(\text{Cs-137})$$

$$\sigma = .049 \text{ mv}/\mu\text{R/h}$$

$$k(\text{Ra-226}) = 19.46 \text{ mv}/\mu\text{R/h}$$

$$V = \frac{\sigma}{k} = 0.250\%$$

By:

Date:

7/16/96





**Reuter-Stokes**

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## Calibration Certificate

Reuter-Stokes certifies that the Environmental Radiation Monitoring Station, identified below, has been calibrated with standards traceable to the National Institute of Standards and Technology.

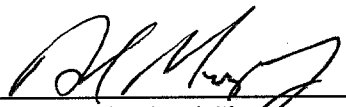
Model #: RSS-112

Serial Number: L-230

Calibration Date: 7/22/96

As Found: **Keypad (SK2) Inoperative**

After Repair **Within Tolerance**

  
Authorized Signature

Procedure used: Operational Manual.



*Reuter-Stokes*

**CALIBRATION CERTIFICATE**

Reuter-Stokes certifies that the Environmental Radiation Monitor, identified below, has been calibrated for output using the shadow shield technique\*, and calibrated with radiation sources traceable to the National Institute of Standards and Technology.

Sensor Type: 100mR/h

Serial Number: L-2088

Calibration Date: 10/04/94

Sensitivity: 19.97 mV/uR/h

*Jan Edward Orbin*  
Authorized Signature

\* See Operating Manual for Details on technique.



Reuter-Stokes, Inc.  
Edison Park  
8499 Darrow Road, Twinsburg, Ohio 44087-2398  
216 425-3755, Fx: 425-4045

HPIC Sensor Type: 100mR/h      Sensor Serial Number: L-2088

Time of Calibration: 10/04/94 10:08:47AM

Customer Name: WESTINGHOUSE

Co-60 Source Serial Number: P629      Source Birth Date: 11/01/91

Days since Birth: 1068      Exposure Rate at 1 meter: 0.909 mR/h

| Calibration Data |                |                        |                    |                |            |                        |
|------------------|----------------|------------------------|--------------------|----------------|------------|------------------------|
| Distance<br>feet | Distance<br>cm | Field Strength<br>uR/h | P + S + A<br>volts | S + A<br>volts | P<br>volts | Sensitivity<br>mV/uR/h |
| 10               | 305            | 96.451                 | 2.239              | 0.366          | 1.873      | 19.41                  |
| 12               | 366            | 66.703                 | 1.625              | 0.334          | 1.291      | 19.35                  |
| 14               | 427            | 48.803                 | 1.261              | 0.312          | 0.948      | 19.43                  |
| 16               | 488            | 37.211                 | 1.023              | 0.296          | 0.727      | 19.54                  |
| 18               | 549            | 29.279                 | 0.853              | 0.281          | 0.572      | 19.53                  |

Average Co-60 Sensitivity as tested: 19.46 mV/uR/h  
Standard Dev: 0.080 mV/uR/h  
Percent Variance: 0.414 %  
Average RA-226 Sensitivity as tested: 19.88 mV/uR/h

| Re-Check Data Following Calibration Adjustment |                |                        |                    |                |            |                        |
|--|----------------|------------------------|--------------------|----------------|------------|------------------------|
| Distance<br>feet                               | Distance<br>cm | Field Strength<br>uR/h | P + S + A<br>volts | S + A<br>volts | P<br>volts | Sensitivity<br>mV/uR/h |
| 12   | 366            | 66.703                 | 1.642              | 0.339          | 1.302      | 19.54                  |

Co-60 Sensitivity as Re-Checked: 19.54 mV/uR/h  
RA-226 Sensitivity as Re-Checked: 19.97 mV/uR/h

NAME: James Radloff

DATE: 10/6/94



*Reuter-Stokes*

**CALIBRATION CERTIFICATE**

Reuter-Stokes certifies that the Environmental Radiation Monitor, identified below, has been calibrated for output using the shadow shield technique\*, and calibrated with radiation sources traceable to the National Institute of Standards and Technology.

Sensor Type: 100mR/h

Serial Number: L-2088

Calibration Date: 08/31/93

Customer PO No.: MB-14007-D

Sensitivity: 19.88 mV/uR/h

*George Pallas* 8/2/93  
Authorized Signature

\* See Operating Manual for Details on technique.



Reuter-Stokes, Inc.  
Edison Park  
8499 Darrow Road, Twinsburg, Ohio 44087-2398  
216 425-3755, Fx: 425-4045

HPIC Sensor Type: 100mR/h      Sensor Serial Number: L-2088

Time of Calibration: 08/31/93 11:38:09AM

Customer Name: WESTINGHOUSE ELECTRIC      Customer PO Number: MB-14007-D

Co-60 Source Serial Number: P629      Source Birth Date: 11/01/91

Days since Birth: 669      Exposure Rate at 1 meter: 1.049 mR/h

| Calibration Data |                |                        |                    |                |            |                        |
|------------------|----------------|------------------------|--------------------|----------------|------------|------------------------|
| Distance<br>feet | Distance<br>cm | Field Strength<br>uR/h | P + S + A<br>volts | S + A<br>volts | P<br>volts | Sensitivity<br>mV/uR/h |
| 10               | 305            | 111.392                | 2.563              | 0.404          | 2.159      | 19.38                  |
| 12               | 366            | 77.036                 | 1.867              | 0.367          | 1.500      | 19.47                  |
| 14               | 427            | 56.364                 | 1.436              | 0.343          | 1.093      | 19.40                  |
| 16               | 488            | 42.975                 | 1.172              | 0.331          | 0.841      | 19.57                  |
| 18               | 549            | 33.815                 | 0.978              | 0.321          | 0.657      | 19.43                  |

Average Co-60 Sensitivity as tested: 19.45 mV/uR/h  
Standard Dev: 0.077 mV/uR/h  
Percent Variance: 0.398 %  
Average RA-226 Sensitivity as tested: 19.88 mV/uR/h

NAME: \_\_\_\_\_

*James R. Sullivan*

DATE: \_\_\_\_\_

*9/2/93*



Reuter-Stokes, Inc.  
Edison Park  
8499 Darrow Road, Twinsburg, Ohio 44087-2398  
216 425-3755, Ex: 425-4045

HPIC Sensor Type: 100mR/h      Sensor Serial Number: L-2088

Time of Calibration: 07/21/92 11:33:04AM

Co-60 Source Serial Number: P629      Source Birth Date: 11/01/91

Days since Birth: 263      Exposure Rate at 1 meter: 1.215 mR/h

| Calibration Data |             |                     |                 |             |         |                     |
|------------------|-------------|---------------------|-----------------|-------------|---------|---------------------|
| Distance feet    | Distance cm | Field Strength uR/h | P + S + A volts | S + A volts | P volts | Sensitivity mV/uR/h |
| 10               | 305         | 128.973             | 2.910           | 0.429       | 2.481   | 19.24               |
| 12               | 366         | 89.194              | 2.113           | 0.393       | 1.720   | 19.28               |
| 14               | 427         | 65.259              | 1.626           | 0.363       | 1.263   | 19.35               |
| 16               | 488         | 49.758              | 1.295           | 0.339       | 0.956   | 19.21               |
| 18               | 549         | 39.152              | 1.079           | 0.323       | 0.756   | 19.31               |

Average Co-60 Sensitivity as tested: 19.28 mV/uR/h

Standard Dev: 0.056 mV/uR/h

Percent Variance: 0.292 %

Average RA-226 Sensitivity as tested: 19.70 mV/uR/h

| Re-Check Data Following Calibration Adjustment |             |                     |                 |             |         |                     |
|--|-------------|---------------------|-----------------|-------------|---------|---------------------|
| Distance feet                                  | Distance cm | Field Strength uR/h | P + S + A volts | S + A volts | P volts | Sensitivity mV/uR/h |
| 12   | 366         | 89.194              | 2.145           | 0.402       | 1.743   | 19.54               |

Co-60 Sensitivity as Re-Checked: 19.54 mV/uR/h

RA-226 Sensitivity as Re-Checked: 19.97 mV/uR/h

NAME: Larry Beck

DATE: 7-21-92