



UVAP Radiological Survey Form

| | | | | | | | | | | |
|--|----------------|----------|---------------------|--------------|-------------|------------|----------|----------|--------------|---------------------------|
| Location: | RWPI/WP | Survey # | UVA-FS-052 | Survey Type: | Page 1 of 3 | | | | | |
| Nuclear Reactor Facility outside | | | Final Status Survey | | | | | | | |
| Comments: | Surveyed By: | Date: | Instrument | Serial # | Cal. Due | Proba Area | Serial # | Cal. Due | β Eff. | M α β Bkg Lc |
| Final Status Survey of Reactor Confinement | Alice Thompson | 07/17/03 | Tennelec | 64052 | 4/16/2004 | n/a n/a | n/a | n/a | | |
| Roof | Jason Strand | 07/14/03 | M-2221 | 172051 | 4/2/2004 | 43-68 126 | 116718 | 4/2/2004 | 0.107 | 339 |
| Survey Unit 48 | Brad Myers | 07/14/03 | M-2221 | 157081 | 3/17/2004 | 44-10 | n/a | 155202 | 3/17/2004 | n/a |
| Final Status Survey Addendum 006 | Reviewed By: | Date: | | | | | | | | |
| | Frank Myers | 07/17/03 | | | | | | | | |

Key: \circ = Smear xxx to xxx = Direct Fns; Δ = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate ** = General dose rate

| Smears | | | | Static Count β | | | | Coordinates | | | | |
|--------|----------|---------|------------------------|----------------------|-----|-----|-------|-------------|-------|------|-----------|---|
| No. | α | β | DPM/100cm ² | No. | CPM | Net | Lc | No. | North | East | Elevation | |
| 1 | See | | | 1 | 633 | 296 | 2,500 | 297 | 1 | 1.5 | 3.5 | 0 |
| 2 | Attached | | | 2 | 603 | 308 | 2,188 | 303 | 2 | 1.5 | 5.5 | 0 |
| 3 | Report | | | 3 | 687 | 304 | 2,841 | 301 | 3 | 1.5 | 7.5 | 0 |
| 4 | | | | 4 | 376 | 349 | 200 | 323 | 4 | 1.5 | 9.5 | 0 |
| 5 | | | | 5 | 723 | 274 | 3,330 | 286 | 5 | 1.5 | 11.5 | 0 |
| 6 | | | | 6 | 804 | 355 | 3,330 | 326 | 6 | 3.5 | 2.5 | 0 |
| 7 | | | | 7 | 718 | 371 | 2,574 | 333 | 7 | 3.5 | 4.5 | 0 |
| 8 | | | | 8 | 723 | 311 | 3,056 | 305 | 8 | 3.5 | 8.5 | 0 |
| 9 | | | | 9 | 519 | 338 | 1,343 | 318 | 9 | 3.5 | 8.5 | 0 |
| 10 | | | | 10 | 693 | 361 | 2,463 | 328 | 10 | 3.5 | 10.5 | 0 |
| 11 | | | | 11 | 656 | 372 | 2,107 | 333 | 11 | 3.5 | 12.5 | 0 |
| 12 | | | | 12 | 812 | 360 | 3,353 | 328 | 12 | 3.5 | 14.5 | 0 |
| 13 | | | | 13 | 673 | 370 | 2,247 | 332 | 13 | 5.5 | 1.5 | 0 |
| 14 | | | | 14 | 559 | 345 | 1,587 | 321 | 14 | 5.5 | 3.5 | 0 |
| 15 | | | | 15 | 620 | 349 | 2,010 | 323 | 15 | 5.5 | 5.5 | 0 |
| 16 | | | | 16 | 660 | 358 | 2,240 | 327 | 16 | 5.5 | 7.5 | 0 |
| 17 | | | | 17 | 643 | 354 | 2,144 | 325 | 17 | 5.5 | 9.5 | 0 |
| 18 | | | | 18 | 570 | 351 | 1,624 | 324 | 18 | 5.5 | 11.5 | 0 |
| 19 | | | | 19 | 666 | 341 | 2,411 | 319 | 19 | 5.5 | 13.5 | 0 |
| 20 | | | | 20 | 789 | 385 | 2,997 | 339 | 20 | 5.5 | 15.5 | 0 |
| QC | | | | QC | 726 | 364 | 2,685 | 330 | QC | 5.5 | 15.5 | 0 |
| 21 | | | | 21 | 444 | 295 | 1,105 | 297 | 21 | 7.5 | 0.5 | 0 |
| 22 | | | | 22 | 391 | 254 | 1,016 | 275 | 22 | 7.5 | 2.5 | 0 |
| 23 | | | | 23 | 450 | 239 | 1,565 | 267 | 23 | 7.5 | 4.5 | 0 |
| 24 | | | | 24 | 419 | 250 | 1,254 | 273 | 24 | 7.5 | 6.5 | 0 |
| 25 | | | | 25 | 366 | 244 | 905 | 270 | 25 | 7.5 | 8.5 | 0 |
| 26 | | | | 26 | 429 | 324 | 779 | 311 | 26 | 7.5 | 10.5 | 0 |
| 27 | | | | 27 | 499 | 231 | 1,988 | 283 | 27 | 7.5 | 12.2 | 0 |
| 28 | | | | 28 | 586 | 289 | 2,203 | 294 | 28 | 7.5 | 14.5 | 0 |
| 29 | | | | 29 | 488 | 293 | 1,448 | 296 | 29 | 9.5 | 1.5 | 0 |
| 30 | | | | 30 | 482 | 255 | 1,684 | 276 | 30 | 9.5 | 3.5 | 0 |
| 31 | | | | 31 | 471 | 248 | 1,654 | 272 | 31 | 9.5 | 5.5 | 0 |
| 32 | | | | 32 | 476 | 265 | 1,565 | 281 | 32 | 9.5 | 7.5 | 0 |
| 33 | | | | 33 | 473 | 248 | 1,669 | 272 | 33 | 9.5 | 9.5 | 0 |
| 34 | | | | 34 | 424 | 223 | 1,491 | 258 | 34 | 9.5 | 11.5 | 0 |
| 35 | | | | 35 | 391 | 270 | 897 | 284 | 35 | 9.5 | 13.5 | 0 |
| 36 | | | | 36 | 424 | 240 | 1,365 | 268 | 36 | 9.5 | 15.5 | 0 |
| 37 | | | | 37 | 612 | 287 | 2,559 | 282 | 37 | 11.5 | 0.5 | 0 |
| 38 | | | | 38 | 591 | 262 | 2,440 | 280 | 38 | 11.5 | 2.5 | 0 |
| 39 | | | | 39 | 487 | 288 | 1,476 | 293 | 39 | 11.5 | 4.5 | 0 |
| 40 | | | | 40 | 629 | 290 | 2,514 | 294 | 40 | 11.5 | 8.5 | 0 |
| QC | | | | QC | 614 | 294 | 2,374 | 296 | QC | 11.5 | 8.5 | 0 |



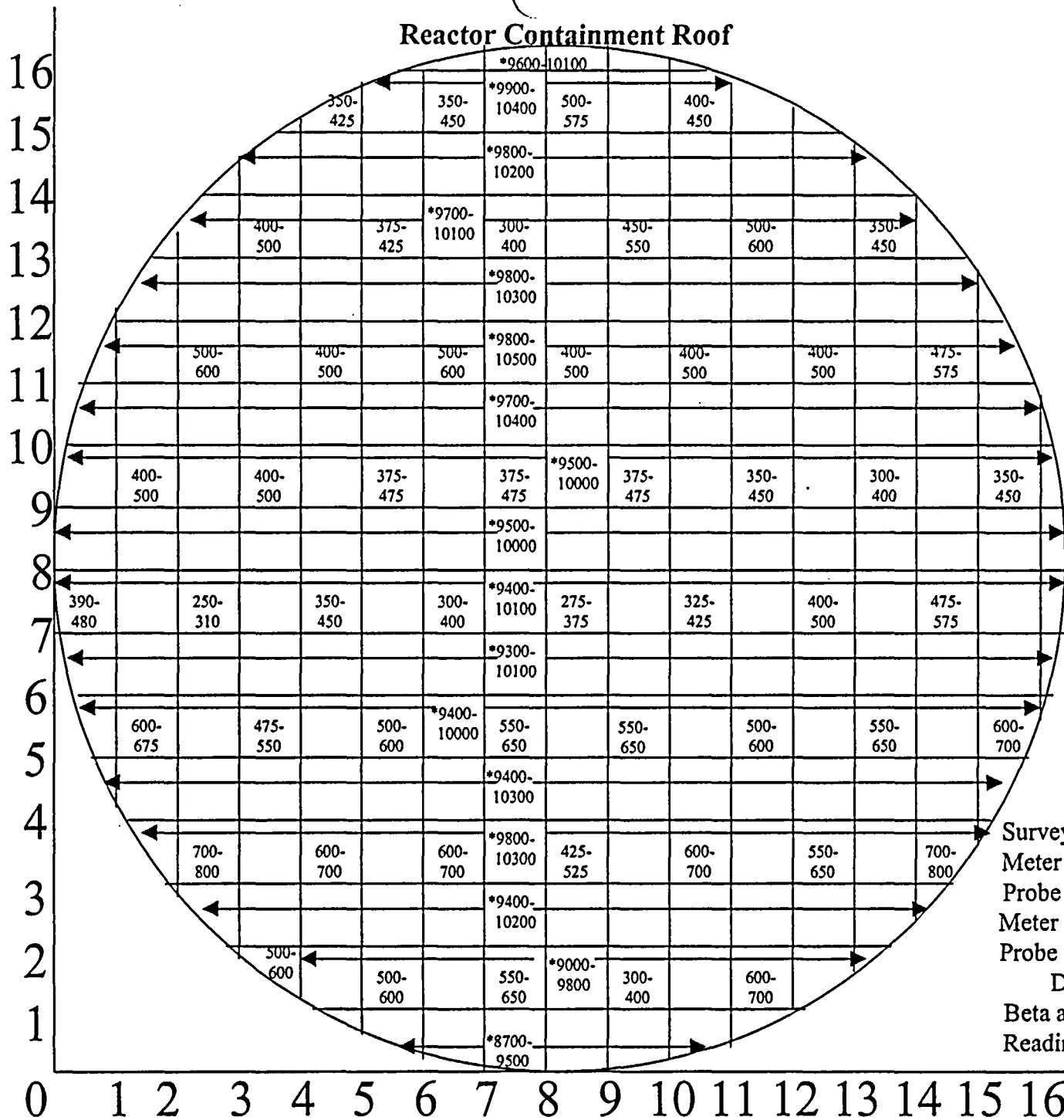
UVAP Radiological Survey Form

| | | | | | | | | | | | |
|--|----------------|-------------|---------------------|-------------|-----------|------------|----------|----------|--------------|--------------------|-----|
| Location: | RWP/WP | Survey # | Survey Type: | Page 2 of 3 | | | | | | | |
| Nuclear Reactor Facility outside | | UVA-FS-052A | Final Status Survey | | | | | | | | |
| Comments: | Surveyed By: | Date: | Instrument | Serial # | Cal. Due | Probe/Area | Serial # | Cal. Due | β Eff. | Max β Bkg Lc | |
| Final Status Survey of Reactor Confinement | Alice Thompson | 07/17/03 | Ternelec | 64052 | 4/16/2004 | n/a | n/a | n/a | n/a | | |
| Roof | Jason Strand | 07/14/03 | M-2221 | 172051 | 4/2/2004 | 43-68 | 126 | 116718 | 4/2/2004 | 0.107 | 303 |
| Survey Unit 48 | Brad Myers | 07/14/03 | M-2221 | 157081 | 3/17/2004 | 44-10 | n/a | 155202 | 3/17/2004 | n/a | |
| Final Status Survey Addendum 006 | Reviewed By: | Date: | | | | | | | | | |
| | Frank Myers | 07/17/03 | | | | | | | | | |

Key: \circ = Smear xxx to xxx = Direct Frisk Δ = air sample B = beta dose rate in mRad/h --X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | Static Count β | | | | Coordinates | | | | | |
|--------|-----------|---------|------------------------|----------------------|-----|---------------|-----|------------------------|-----|-----|-------|------|-----------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded | | DPM/100cm ² | | No. | North | East | Elevation |
| | α | β | α | β | | CPM | Net | Lc | | | | | |
| 41 | See | | | | 41 | 494 | 274 | 1.632 | 286 | 41 | 11.5 | 8.5 | 0 |
| 42 | Attached | | | | 42 | 517 | 244 | 2.025 | 270 | 42 | 11.5 | 10.5 | 0 |
| 43 | Report | | | | 43 | 518 | 262 | 1.899 | 280 | 43 | 11.5 | 12.5 | 0 |
| 44 | | | | | 44 | 579 | 252 | 2.425 | 274 | 44 | 11.5 | 14.5 | 0 |
| 45 | | | | | 45 | 513 | 252 | 1.936 | 274 | 45 | 13.5 | 3.5 | 0 |
| 46 | | | | | 46 | 438 | 266 | 1.276 | 282 | 46 | 13.5 | 5.5 | 0 |
| 47 | | | | | 47 | 371 | 249 | 905 | 273 | 47 | 13.5 | 7.5 | 0 |
| 48 | | | | | 48 | 553 | 307 | 1.825 | 303 | 48 | 13.5 | 9.5 | 0 |
| 49 | | | | | 49 | 602 | 285 | 2.351 | 292 | 49 | 13.5 | 11.5 | 0 |
| 50 | | | | | 50 | 467 | 266 | 1.491 | 282 | 50 | 13.5 | 13.5 | 0 |
| 51 | | | | | 51 | 428 | 282 | 1.083 | 290 | 51 | 15.5 | 4.5 | 0 |
| 52 | | | | | 52 | 463 | 257 | 1.528 | 277 | 52 | 15.5 | 6.5 | 0 |
| 53 | | | | | 53 | 577 | 255 | 2.388 | 276 | 53 | 15.5 | 8.5 | 0 |
| 54 | | | | | 54 | 469 | 267 | 1.498 | 282 | 54 | 15.5 | 10.5 | 0 |
| QC | | | | | QC | 429 | 273 | 1.157 | 286 | QC | 15.5 | 10.5 | 0 |

Reactor Containment Roof



Survey # UVA-FS-052
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157081
 Probe # 44-10 *155202
 Date 7-14-03
 Beta and Gamma Scans
 Readings in CPM



**UVAP
Radiological Survey Form**

| | | | | |
|---|----------------|------------|---------------------|--------------|
| Location: | RWF/IWP | Survey # | Survey Type: | Page 1 of 21 |
| Nuclear Reactor Facility outside | | UVA-FS-053 | Final Status Survey | |
| Comments: | Surveyed By: | Date: | Instrument | Serial # |
| Final Status Survey of Main Building Roof | Alice Thompson | 07/18/03 | Tennelec | 64052 |
| | Jason Strand | 07/15/03 | M-2221 | 172051 |
| Survey Unit 49 | Brad Myers | 07/15/03 | M-2221 | 157031 |
| Final Status Survey Addendum 008 | Reviewed By: | Date: | | |
| | Frank Myers | 07/18/03 | | |

Key: = Smear xxx to xxx = Direct Fnsk = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate * = General dose rate

| Smears | | | | Static Count β | | | | Coordinates | | | | |
|--------|----------|---------|------------------------|----------------------|---------------|-----|-------|-------------|-------|-------|-----------|---|
| No. | α | β | DPM/100cm ² | No. | Unsh/Shielded | Net | Lc | No. | North | East | Elevation | |
| 1 | See | | | 1 | 550 | 270 | 2,077 | 284 | 1 | 0.25 | 4.5 | 0 |
| 2 | Attached | | | 2 | 471 | 307 | 1,216 | 303 | 2 | 1.5 | 2.5 | 0 |
| 3 | Report | | | 3 | 617 | 306 | 2,307 | 302 | 3 | 0.25 | 0.5 | 0 |
| 4 | | | | 4 | 608 | 324 | 2,107 | 311 | 4 | 2.75 | 0.5 | 0 |
| 5 | | | | 5 | 396 | 266 | 964 | 282 | 5 | 5.25 | 4.5 | 0 |
| 6 | | | | 6 | 363 | 284 | 586 | 291 | 6 | 7.75 | 4.5 | 0 |
| 7 | | | | 7 | 336 | 207 | 957 | 249 | 7 | 2.75 | 4.5 | 0 |
| 8 | | | | 8 | 309 | 236 | 541 | 265 | 8 | 4 | 2.5 | 0 |
| 9 | | | | 9 | 438 | 218 | 1,632 | 255 | 9 | 5.25 | 0.5 | 0 |
| 10 | | | | 10 | 374 | 218 | 1,157 | 255 | 10 | 6.5 | 2.5 | 0 |
| 11 | | | | 11 | 461 | 195 | 1,973 | 241 | 11 | 7.75 | 0.5 | 0 |
| 12 | | | | 12 | 371 | 221 | 1,113 | 257 | 12 | 9 | 2.5 | 0 |
| 13 | | | | 13 | 383 | 225 | 1,172 | 259 | 13 | 10.25 | 4.5 | 0 |
| 14 | | | | 14 | 465 | 224 | 1,788 | 259 | 14 | 12.75 | 4.5 | 0 |
| 15 | | | | 15 | 387 | 219 | 1,248 | 256 | 15 | 11.5 | 2.5 | 0 |
| 16 | | | | 16 | 523 | 237 | 2,121 | 266 | 16 | 10.25 | 0.5 | 0 |
| 17 | | | | 17 | 511 | 233 | 2,062 | 264 | 17 | 12.75 | 0.5 | 0 |
| 18 | | | | 18 | 497 | 248 | 1,847 | 272 | 18 | 14 | 2.5 | 0 |
| 19 | | | | 19 | 463 | 241 | 1,647 | 268 | 19 | 14 | 5.5 | 0 |
| 20 | | | | 20 | 484 | 254 | 1,706 | 275 | 20 | 12.75 | 7.5 | 0 |
| QC | | | | QC | 477 | 268 | 1,565 | 282 | QC | 12.75 | 7.5 | 0 |
| 21 | | | | 21 | 459 | 234 | 1,669 | 264 | 21 | 14 | 9.5 | 0 |
| 22 | | | | 22 | 265 | 225 | 297 | 259 | 22 | 11.5 | 9.5 | 0 |
| 23 | | | | 23 | 478 | 242 | 1,750 | 269 | 23 | 10.25 | 7.5 | 0 |
| 24 | | | | 24 | 383 | 263 | 890 | 280 | 24 | 11.5 | 5.5 | 0 |
| 25 | | | | 25 | 363 | 276 | 645 | 287 | 25 | 9 | 5.5 | 0 |
| 26 | | | | 26 | 432 | 269 | 1,209 | 283 | 26 | 7.75 | 7.5 | 0 |
| 27 | | | | 27 | 415 | 280 | 1,001 | 289 | 27 | 9 | 9.5 | 0 |
| 28 | | | | 28 | 440 | 254 | 1,380 | 275 | 28 | 6.5 | 9.5 | 0 |
| 29 | | | | 29 | 439 | 262 | 1,313 | 280 | 29 | 5.25 | 7.5 | 0 |
| 30 | | | | 30 | 400 | 276 | 920 | 287 | 30 | 6.5 | 5.5 | 0 |
| 31 | | | | 31 | 281 | 253 | 208 | 275 | 31 | 4 | 5.5 | 0 |
| 32 | | | | 32 | 357 | 220 | 1,016 | 256 | 32 | 2.75 | 7.5 | 0 |
| 33 | | | | 33 | 325 | 234 | 675 | 264 | 33 | 4 | 9.5 | 0 |
| 34 | | | | 34 | 430 | 221 | 1,550 | 257 | 34 | 1.5 | 9.5 | 0 |
| 35 | | | | 35 | 592 | 271 | 2,381 | 285 | 35 | 0.25 | 7.5 | 0 |
| 36 | | | | 36 | 556 | 273 | 2,099 | 286 | 36 | 1.5 | 5.5 | 0 |
| 37 | | | | 37 | 559 | 266 | 2,173 | 282 | 37 | 0.25 | 10.5 | 0 |
| 38 | | | | 38 | 316 | 297 | 141 | 298 | 38 | 1.5 | 12.5 | 0 |
| 39 | | | | 39 | 298 | 298 | -15 | 298 | 39 | 0.25 | 14.5 | 0 |
| 40 | | | | 40 | 301 | 294 | 52 | 296 | 40 | 2.75 | 14.5 | 0 |
| QC | | | | QC | 323 | 309 | 104 | 304 | QC | 2.75 | 14.5 | 0 |



UVAP Radiological Survey Form

| | | | | |
|--|--------|------------------------------------|--|-----------------------------|
| Location: Nuclear Reactor Facility outside | RWP/WP | Survey # UVA-FS-053A | Survey Type: Final Status Survey | Page 2 of 21 |
| Comments: Final Status Survey of Main Building Roof | | Surveyed By: Alice Thompson | Date: 07/18/03 | Instrument: Tennelec |
| | | Surveyed By: Jason Strand | Date: 07/15/03 | Serial #: 64052 |
| | | Surveyed By: Brad Myers | Date: 07/15/03 | Cal. Due: 4/16/2004 |
| | | Surveyed By: Frank Myers | Date: 07/18/03 | Prob/area: n/a |
| | | Reviewed By: Frank Myers | Date: 07/18/03 | Serial #: n/a |
| | | | | Cal. Due: n/a |
| | | | | β Eff.: n/a |
| | | | | Max β Bkg Lc: 311 |

Key: = Smear xxx to xxx = Direct Frnsk = Air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | Static Count β | | | | Coordinates | | | | | |
|--------|-----------|---|------------------------|----------------|-----|---------------|-----|------------------------|-----|-----|-------|------|-----------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded | | DPM/100cm ² | | No. | North | East | Elevation |
| | α | β | α | β | | CPM | Net | Lc | α | | | | |
| 41 | See | | | | 41 | 309 | 261 | 356 | 279 | 41 | 4 | 12.5 | 0 |
| 42 | Attached | | | | 42 | 390 | 292 | 727 | 295 | 42 | 2.75 | 10.5 | 0 |
| 43 | Report | | | | 43 | 513 | 275 | 1,765 | 287 | 43 | 5.25 | 10.5 | 0 |
| 44 | | | | | 44 | 554 | 323 | 1,713 | 311 | 44 | 6.5 | 12.5 | 0 |
| 45 | | | | | 45 | 498 | 322 | 1,305 | 310 | 45 | 5.25 | 14.5 | 0 |
| 46 | | | | | 46 | 451 | 259 | 1,424 | 278 | 46 | 7.75 | 14.5 | 0 |
| 47 | | | | | 47 | 503 | 249 | 1,884 | 273 | 47 | 9 | 12.5 | 0 |
| 48 | | | | | 48 | 401 | 274 | 942 | 286 | 48 | 7.75 | 10.5 | 0 |
| 49 | | | | | 49 | 454 | 262 | 1,424 | 280 | 49 | 10.25 | 10.5 | 0 |
| 50 | | | | | 50 | 452 | 263 | 1,402 | 280 | 50 | 12.75 | 10.5 | 0 |
| 51 | | | | | 51 | 473 | 286 | 1,387 | 292 | 51 | 14 | 12.5 | 0 |
| 52 | | | | | 52 | 416 | 257 | 1,179 | 277 | 52 | 11.5 | 12.5 | 0 |
| 53 | | | | | 53 | 377 | 285 | 682 | 292 | 53 | 12.75 | 14.5 | 0 |
| 54 | | | | | 54 | 358 | 278 | 593 | 288 | 54 | 10.25 | 14.5 | 0 |
| 55 | | | | | 55 | 409 | 270 | 1,031 | 284 | 55 | 14 | 15.5 | 0 |
| 56 | | | | | 56 | 364 | 308 | 415 | 303 | 56 | 12.75 | 17.5 | 0 |
| 57 | | | | | 57 | 497 | 269 | 1,691 | 283 | 57 | 14 | 19.5 | 0 |
| 58 | | | | | 58 | 429 | 259 | 1,261 | 278 | 58 | 11.5 | 19.5 | 0 |
| 59 | | | | | 59 | 413 | 274 | 1,031 | 286 | 59 | 10.25 | 17.5 | 0 |
| 60 | | | | | 60 | 327 | 245 | 608 | 271 | 60 | 11.5 | 15.5 | 0 |
| QC | | | | | QC | 351 | 267 | 623 | 282 | QC | 11.5 | 15.5 | 0 |
| 61 | | | | | 61 | 469 | 243 | 1,676 | 269 | 61 | 9 | 15.5 | 0 |
| 62 | | | | | 62 | 438 | 300 | 1,024 | 299 | 62 | 7.75 | 17.5 | 0 |
| 63 | | | | | 63 | 422 | 237 | 1,372 | 266 | 63 | 9 | 19.5 | 0 |
| 64 | | | | | 64 | 465 | 224 | 1,788 | 259 | 64 | 6.5 | 19.5 | 0 |
| 65 | | | | | 65 | 478 | 259 | 1,624 | 278 | 65 | 5.25 | 17.5 | 0 |
| 66 | | | | | 66 | 467 | 272 | 1,446 | 285 | 66 | 6.5 | 15.5 | 0 |
| 67 | | | | | 67 | 464 | 281 | 1,357 | 290 | 67 | 4 | 15.5 | 0 |
| 68 | | | | | 68 | 409 | 291 | 875 | 295 | 68 | 2.75 | 17.5 | 0 |
| 69 | | | | | 69 | 304 | 298 | 45 | 298 | 69 | 4 | 19.5 | 0 |
| 70 | | | | | 70 | 546 | 343 | 1,506 | 320 | 70 | 1.5 | 19.5 | 0 |
| 71 | | | | | 71 | 571 | 261 | 2,299 | 279 | 71 | 0.25 | 17.5 | 0 |
| 72 | | | | | 72 | 503 | 286 | 1,610 | 292 | 72 | 1.5 | 15.5 | 0 |
| 73 | | | | | 73 | 620 | 307 | 2,322 | 303 | 73 | 0.25 | 20.5 | 0 |
| 74 | | | | | 74 | 546 | 316 | 1,706 | 307 | 74 | 2.75 | 20.5 | 0 |
| 75 | | | | | 75 | 578 | 313 | 1,966 | 306 | 75 | 5.25 | 20.5 | 0 |
| 76 | | | | | 76 | 587 | 338 | 1,847 | 318 | 76 | 7.75 | 20.5 | 0 |
| 77 | | | | | 77 | 560 | 313 | 1,832 | 306 | 77 | 10.25 | 20.5 | 0 |
| 78 | | | | | 78 | 566 | 341 | 1,669 | 319 | 78 | 12.75 | 20.5 | 0 |
| 79 | | | | | 79 | 414 | 360 | 401 | 328 | 79 | 14 | 22.5 | 0 |
| 80 | | | | | 80 | 614 | 338 | 2,047 | 318 | 80 | 11.5 | 22.5 | 0 |
| QC | | | | | QC | 640 | 335 | 2,262 | 316 | QC | 11.5 | 22.5 | 0 |



**UVAP
Radiological Survey Form**

| | | | | |
|---|-------------------------|-------------|---------------------|--------------|
| Location: | RWP/WP | Survey # | Survey Type: | Page 3 of 21 |
| Nuclear Reactor Facility outside | | UVA-FS-053B | Final Status Survey | |
| Comments: | Surveyed By: Date: | Instrument | Serial # | Cal. Due |
| Final Status Survey of Main Building Roof | Alice Thompson 07/18/03 | Ternelec | 64052 | 4/16/2004 |
| | Jason Strand 07/15/03 | M-2221 | 172051 | 4/2/2004 |
| Survey Unit 49 | Brad Myers 07/15/03 | M-2221 | 157031 | 3/17/2004 |
| Final Status Survey Addendum 006 | Reviewed By: Date: | | | |
| | Frank Myers 07/18/03 | | | |

Key: = Smear xxx to xxx = Direct Frsk = air sample = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | | Static Count | | | | Coordinates | | | | |
|--------|-----------|---|------------------------|---|--------------|---------------|-----|------------------------|-------------|-----|-------|------|-----------|
| No. | Gross CPM | | DPN/100cm ² | | No. | Unsh/Shielded | | DPM/100cm ² | | No. | North | East | Elevation |
| | α | β | α | β | | CPM | Net | Lc | Net | | | | |
| 81 | See | | | | 81 | 553 | 329 | 1,661 | 313 | 81 | 9 | 22.5 | 0 |
| 82 | Attached | | | | 82 | 618 | 314 | 2,255 | 306 | 82 | 6.5 | 22.5 | 0 |
| 83 | Report | | | | 83 | 525 | 295 | 1,706 | 297 | 83 | 4 | 22.5 | 0 |
| 84 | | | | | 84 | 547 | 333 | 1,587 | 315 | 84 | 1.5 | 22.5 | 0 |
| 85 | | | | | 85 | 366 | 317 | 363 | 308 | 85 | 0.25 | 24.5 | 0 |
| 86 | | | | | 86 | 581 | 345 | 1,750 | 321 | 86 | 2.75 | 24.5 | 0 |
| 87 | | | | | 87 | 578 | 358 | 1,632 | 327 | 87 | 5.25 | 24.5 | 0 |
| 88 | | | | | 88 | 491 | 317 | 1,291 | 308 | 88 | 7.75 | 24.5 | 0 |
| 89 | | | | | 89 | 566 | 335 | 1,713 | 316 | 89 | 10.25 | 24.5 | 0 |
| 90 | | | | | 90 | 516 | 327 | 1,402 | 313 | 90 | 12.75 | 24.5 | 0 |
| 91 | | | | | 91 | 410 | 253 | 1,165 | 275 | 91 | 1.5 | 25.5 | 0 |
| 92 | | | | | 92 | 484 | 388 | 712 | 340 | 92 | 4 | 25.5 | 0 |
| 93 | | | | | 93 | 407 | 267 | 1,038 | 282 | 93 | 6.5 | 25.5 | 0 |
| 94 | | | | | 94 | 479 | 308 | 1,268 | 303 | 94 | 9 | 25.5 | 0 |
| 95 | | | | | 95 | 524 | 310 | 1,587 | 304 | 95 | 11.5 | 25.5 | 0 |
| 96 | | | | | 96 | 343 | 311 | 237 | 305 | 96 | 14 | 25.5 | 0 |
| 97 | | | | | 97 | 429 | 295 | 994 | 297 | 97 | 12.75 | 27.5 | 0 |
| 98 | | | | | 98 | 451 | 266 | 1,372 | 282 | 98 | 10.25 | 27.5 | 0 |
| 99 | | | | | 99 | 477 | 278 | 1,476 | 268 | 99 | 7.75 | 27.5 | 0 |
| 100 | | | | | 100 | 539 | 389 | 1,113 | 341 | 100 | 5.25 | 27.5 | 0 |
| QC | | | | | QC | 543 | 381 | 1,202 | 337 | QC | 5.25 | 27.5 | 0 |
| 101 | | | | | 101 | 514 | 282 | 1,721 | 290 | 101 | 2.75 | 27.5 | 0 |
| 102 | | | | | 102 | 577 | 326 | 1,862 | 312 | 102 | 0.25 | 27.5 | 0 |
| 103 | | | | | 103 | 554 | 318 | 1,750 | 308 | 103 | 1.5 | 29.5 | 0 |
| 104 | | | | | 104 | 489 | 338 | 1,120 | 318 | 104 | 4 | 29.5 | 0 |
| 105 | | | | | 105 | 528 | 298 | 1,706 | 298 | 105 | 6.5 | 29.5 | 0 |
| 106 | | | | | 106 | 577 | 343 | 1,736 | 320 | 106 | 9 | 29.5 | 0 |
| 107 | | | | | 107 | 437 | 317 | 890 | 308 | 107 | 11.5 | 29.5 | 0 |
| 108 | | | | | 108 | 448 | 308 | 1,038 | 303 | 108 | 14 | 29.5 | 0 |
| 109 | | | | | 109 | 533 | 315 | 1,617 | 307 | 109 | 15 | 22 | 0 |
| 110 | | | | | 110 | 536 | 379 | 1,165 | 336 | 110 | 15 | 24 | 0 |
| 111 | | | | | 111 | 515 | 357 | 1,172 | 327 | 111 | 15 | 26 | 0 |
| 112 | | | | | 112 | 453 | 349 | 771 | 323 | 112 | 15 | 28 | 0 |
| 113 | | | | | 113 | 437 | 323 | 846 | 311 | 113 | 17 | 23 | 0 |
| 114 | | | | | 114 | 480 | 351 | 957 | 324 | 114 | 17 | 25 | 0 |
| 115 | | | | | 115 | 473 | 315 | 1,172 | 307 | 115 | 17 | 27 | 0 |
| 116 | | | | | 116 | 472 | 305 | 1,239 | 302 | 116 | 17 | 29 | 0 |
| 117 | | | | | 117 | 482 | 355 | 942 | 326 | 117 | 19 | 24 | 0 |
| 118 | | | | | 118 | 521 | 251 | 2,003 | 274 | 118 | 19 | 26 | 0 |
| 119 | | | | | 119 | 469 | 317 | 1,127 | 308 | 119 | 19 | 28 | 0 |
| 120 | | | | | 120 | 436 | 314 | 905 | 306 | 120 | 21 | 23 | 0 |
| QC | | | | | QC | 476 | 329 | 1,090 | 313 | QC | 21 | 23 | 0 |



UVAP
Radiological Survey Form

| | | | | | | | | | | |
|---|----------------|----------|-----------------------------|----------|---|------------|--------------|----------|--------------|---------------------------|
| Location: Nuclear Reactor Facility outside | | RWP/WP | Survey # UVA-FS-053C | | Survey Type: Final Status Survey | | Page 4 of 21 | | | |
| Comments: | Surveyed By: | Date: | Instrument | Serial # | Cal. Due | Probe Area | Serial # | Cal. Due | β Eff. | M α β Bkg Lc |
| Final Status Survey of Main Building Roof | Alice Thompson | 07/18/03 | Tennelec | 64052 | 4/16/2004 | n/a n/a | n/a | n/a | n/a | |
| | Jason Strand | 07/15/03 | M-2221 | 172051 | 4/2/2004 | 43-68 126 | 116718 | 4/2/2003 | 0.107 | 353 |
| Survey Unit 49 | Brad Myers | 07/15/03 | M-2221 | 157031 | 3/17/2004 | 44-10 | n/a | 155202 | 3/17/2004 | n/a |
| Final Status Survey Addendum 006 | Reviewed By: | Date: | | | | | | | | |
| | Frank Myers | 07/18/03 | | | | | | | | |

Key: = Smear xxx to xxx = Direct Frsk = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | | Static Count β | | | | | Coordinates | | | |
|--------|-----------|---------|------------------------|---------|----------------------|---------------|-----|------------------------|-----|-------------|-------|------|-----------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded | | DPM/100cm ² | | No. | North | East | Elevation |
| | α | β | α | β | | CPM | Net | Lc | | | | | |
| 121 | See | | | | 121 | 512 | 340 | 1,276 | 319 | 121 | 21 | 25 | 0 |
| 122 | Attached | | | | 122 | 493 | 325 | 1,246 | 312 | 122 | 21 | 27 | 0 |
| 123 | Report | | | | 123 | 382 | 362 | 148 | 329 | 123 | 21 | 29 | 0 |
| 124 | | | | | 124 | 551 | 395 | 1,157 | 343 | 124 | 21 | 31 | 0 |
| 125 | | | | | 125 | 448 | 348 | 742 | 322 | 125 | 23 | 26 | 0 |
| 126 | | | | | 126 | 477 | 305 | 1,276 | 302 | 126 | 23 | 28 | 0 |
| 127 | | | | | 127 | 474 | 340 | 994 | 319 | 127 | 23 | 30 | 0 |
| 128 | | | | | 128 | 472 | 332 | 1,038 | 315 | 128 | 23 | 32 | 0 |
| 129 | | | | | 129 | 450 | 341 | 808 | 319 | 129 | 23 | 34 | 0 |
| 130 | | | | | 130 | 521 | 343 | 1,320 | 320 | 130 | 23 | 36 | 0 |
| 131 | | | | | 131 | 490 | 347 | 1,061 | 322 | 131 | 25 | 29 | 0 |
| 132 | | | | | 132 | 455 | 369 | 638 | 332 | 132 | 25 | 31 | 0 |
| 133 | | | | | 133 | 628 | 356 | 2,018 | 326 | 133 | 25 | 33 | 0 |
| 134 | | | | | 134 | 588 | 371 | 1,610 | 333 | 134 | 25 | 35 | 0 |
| 135 | | | | | 135 | 490 | 389 | 749 | 341 | 135 | 25 | 37 | 0 |
| 136 | | | | | 136 | 488 | 414 | 549 | 352 | 136 | 27 | 32 | 0 |
| 137 | | | | | 137 | 557 | 364 | 1,432 | 330 | 137 | 27 | 34 | 0 |
| 138 | | | | | 138 | 614 | 418 | 1,454 | 353 | 138 | 27 | 36 | 0 |
| 139 | | | | | 139 | 580 | 401 | 1,328 | 346 | 139 | 29 | 37 | 0 |
| 140 | | | | | 140 | 445 | 277 | 1,246 | 288 | 140 | 0.25 | 30.5 | -3.4 |
| QC | | | | | QC | 450 | 265 | 1,372 | 281 | QC | 0.25 | 30.5 | -3.4 |
| 141 | | | | | 141 | 412 | 269 | 1,061 | 283 | 141 | 2.75 | 30.5 | -3.4 |
| 142 | | | | | 142 | 555 | 279 | 2,047 | 289 | 142 | 5.25 | 30.5 | -3.4 |
| 143 | | | | | 143 | 556 | 277 | 2,069 | 288 | 143 | 7.75 | 30.5 | -3.4 |
| 144 | | | | | 144 | 567 | 326 | 1,788 | 312 | 144 | 1.5 | 32.5 | -3.4 |
| 145 | | | | | 145 | 508 | 322 | 1,380 | 310 | 145 | 4 | 32.5 | -3.4 |
| 146 | | | | | 146 | 417 | 330 | 645 | 314 | 146 | 6.5 | 32.5 | -3.4 |
| 147 | | | | | 147 | 609 | 331 | 2,062 | 314 | 147 | 0.25 | 34.5 | -3.4 |
| 148 | | | | | 148 | 654 | 359 | 2,188 | 327 | 148 | 2.75 | 34.5 | -3.4 |
| 149 | | | | | 149 | 652 | 389 | 1,951 | 341 | 149 | 5.25 | 34.5 | -3.4 |
| 150 | | | | | 150 | 434 | 246 | 1,394 | 271 | 150 | 1.5 | 35.5 | -3.4 |
| 151 | | | | | 151 | 383 | 269 | 846 | 283 | 151 | 4 | 35.5 | -3.4 |
| 152 | | | | | 152 | 395 | 240 | 1,150 | 268 | 152 | 0.25 | 37.5 | -3.4 |
| 153 | | | | | 153 | 422 | 299 | 912 | 299 | 153 | 2.75 | 37.5 | -3.4 |
| 154 | | | | | 154 | 351 | 237 | 846 | 266 | 154 | 5.25 | 37.5 | -3.4 |
| 155 | | | | | 155 | 386 | 273 | 838 | 286 | 155 | 1.5 | 39.5 | -3.4 |
| 156 | | | | | 156 | 463 | 281 | 1,350 | 290 | 156 | 4 | 39.5 | -3.4 |
| 157 | | | | | 157 | 728 | 257 | 3,494 | 277 | 157 | 0.25 | 40.5 | -3.4 |
| 158 | | | | | 158 | 386 | 279 | 794 | 289 | 158 | 2.75 | 40.5 | -3.4 |
| 159 | | | | | 159 | 525 | 288 | 1,758 | 293 | 159 | 5.25 | 40.5 | -3.4 |
| 160 | | | | | 160 | 375 | 293 | 608 | 296 | 160 | 1.5 | 42.5 | -3.4 |
| QC | | | | | QC | 371 | 289 | 608 | 294 | QC | 1.5 | 42.5 | -3.4 |



UVAP
Radiological Survey Form

| | | | | | | |
|---|--|-----------------------------|----------|---|----------|--------------|
| Location: RWP/WP | | Survey # UVA-FS-053D | | Survey Type: Final Status Survey | | Page 5 of 21 |
| Nuclear Reactor Facility outside | | | | | | |
| Comments: | | Surveyed By: | Date: | Instrument | Serial # | Cal. Due |
| Final Status Survey of Main Building Roof | | Alice Thompson | 07/18/03 | Tennelec | 64052 | 4/16/2004 |
| | | Jason Strand | 07/15/03 | M-2221 | 172051 | 4/2/2004 |
| Survey Unit 49 | | Brad Myers | 07/15/03 | M-2221 | 157031 | 3/17/2004 |
| Final Status Survey Addendum 006 | | Reviewed By: | Date: | | | |
| | | Frank Myers | 07/18/03 | | | |

Key: = Smear xxx to xxx = Direct Frisk = Air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | Static Count β | | | | Coordinates | | | | | |
|--------|-----------|---|------------------------|----------------|-----|---------------|-----|------------------------|-----|-----|-------|------|-----------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded | | DPM/100cm ² | | No. | North | East | Elevation |
| | α | β | α | β | | CPM | Net | Lc | | | | | |
| 161 | See | | | | 161 | 413 | 249 | 1,216 | 273 | 161 | 4 | 42.5 | -3.4 |
| 162 | Attached | | | | 162 | 642 | 311 | 2,455 | 305 | 162 | 6.5 | 42.5 | -3.4 |
| 163 | Report | | | | 163 | 417 | 278 | 1,046 | 287 | 163 | 0.25 | 44.5 | -3.4 |
| 164 | | | | | 164 | 456 | 280 | 1,305 | 289 | 164 | 2.75 | 44.5 | -3.4 |
| 165 | | | | | 165 | 514 | 279 | 1,743 | 289 | 165 | 5.25 | 44.5 | -3.4 |
| 166 | | | | | 166 | 566 | 307 | 1,921 | 303 | 166 | 7.75 | 44.5 | -3.4 |
| 167 | | | | | 167 | 491 | 289 | 1,498 | 294 | 167 | 10.25 | 44.5 | -3.4 |
| 168 | | | | | 168 | 582 | 302 | 2,077 | 300 | 168 | 1.25 | 45.5 | -3.4 |
| 169 | | | | | 169 | 522 | 301 | 1,639 | 300 | 169 | 4 | 45.5 | -3.4 |
| 170 | | | | | 170 | 527 | 303 | 1,661 | 301 | 170 | 6.5 | 45.5 | -3.4 |
| 171 | | | | | 171 | 655 | 294 | 2,678 | 296 | 171 | 9 | 45.5 | -3.4 |
| 172 | | | | | 172 | 580 | 291 | 2,144 | 295 | 172 | 11.5 | 45.5 | -3.4 |
| 173 | | | | | 173 | 526 | 328 | 1,469 | 313 | 173 | 14 | 45.5 | -3.4 |
| 174 | | | | | 174 | 479 | 330 | 1,105 | 314 | 174 | 0.25 | 47.5 | -3.4 |
| 175 | | | | | 175 | 578 | 308 | 2,003 | 303 | 175 | 2.75 | 47.5 | -3.4 |
| 176 | | | | | 176 | 643 | 323 | 2,374 | 311 | 176 | 5.25 | 47.5 | -3.4 |
| 177 | | | | | 177 | 408 | 288 | 890 | 293 | 177 | 7.75 | 47.5 | -3.4 |
| 178 | | | | | 178 | 697 | 275 | 3,130 | 287 | 178 | 10.25 | 47.5 | -3.4 |
| 179 | | | | | 179 | 522 | 339 | 1,357 | 318 | 179 | 12.75 | 47.5 | -3.4 |
| 180 | | | | | 180 | 582 | 363 | 1,624 | 329 | 180 | 1.5 | 49.5 | -3.4 |
| QC | | | | | QC | 587 | 346 | 1,788 | 321 | QC | 1.5 | 49.5 | -3.4 |
| 181 | | | | | 181 | 482 | 289 | 1,432 | 294 | 181 | 4 | 49.5 | -3.4 |
| 182 | | | | | 182 | 589 | 307 | 2,092 | 303 | 182 | 6.5 | 49.5 | -3.4 |
| 183 | | | | | 183 | 582 | 315 | 1,980 | 307 | 183 | 9 | 49.5 | -3.4 |
| 184 | | | | | 184 | 578 | 298 | 2,077 | 298 | 184 | 11.5 | 49.5 | -3.4 |
| 185 | | | | | 185 | 526 | 315 | 1,565 | 307 | 185 | 14 | 49.5 | -3.4 |
| 186 | | | | | 186 | 520 | 317 | 1,508 | 308 | 186 | 0.25 | 50.5 | -3.4 |
| 187 | | | | | 187 | 324 | 270 | 401 | 284 | 187 | 2.75 | 50.5 | -3.4 |
| 188 | | | | | 188 | 552 | 315 | 1,758 | 307 | 188 | 5.25 | 50.5 | -3.4 |
| 189 | | | | | 189 | 557 | 322 | 1,743 | 310 | 189 | 7.75 | 50.5 | -3.4 |
| 190 | | | | | 190 | 488 | 318 | 1,261 | 308 | 190 | 10.25 | 50.5 | -3.4 |
| 191 | | | | | 191 | 461 | 354 | 794 | 325 | 191 | 12.75 | 50.5 | -3.4 |
| 192 | | | | | 192 | 541 | 313 | 1,691 | 306 | 192 | 1.5 | 52.5 | -3.4 |
| 193 | | | | | 193 | 480 | 327 | 1,135 | 313 | 193 | 4 | 52.5 | -3.4 |
| 194 | | | | | 194 | 593 | 340 | 1,877 | 319 | 194 | 6.5 | 52.5 | -3.4 |
| 195 | | | | | 195 | 471 | 304 | 1,239 | 301 | 195 | 9 | 52.5 | -3.4 |
| 196 | | | | | 196 | 605 | 306 | 2,218 | 302 | 196 | 11.5 | 52.5 | -3.4 |
| 197 | | | | | 197 | 646 | 316 | 2,448 | 307 | 197 | 14 | 52.5 | -3.4 |
| 198 | | | | | 198 | 447 | 338 | 808 | 318 | 198 | 0.25 | 54.5 | -3.4 |
| 199 | | | | | 199 | 423 | 335 | 653 | 316 | 199 | 2.75 | 54.5 | -3.4 |
| 200 | | | | | 200 | 424 | 281 | 1,061 | 290 | 200 | 5.25 | 54.5 | -3.4 |
| QC | | | | | QC | 389 | 280 | 808 | 289 | QC | 5.25 | 54.5 | -3.4 |



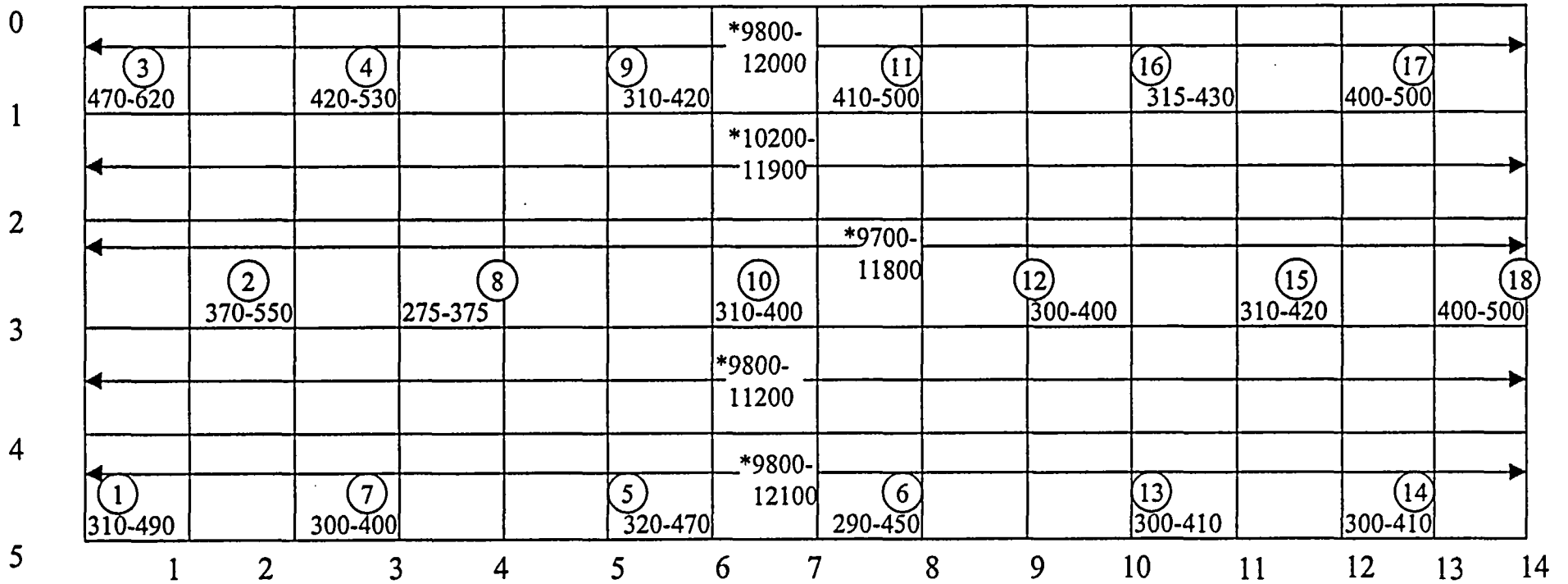
**UVAP
Radiological Survey Form**

| | | | | | | | |
|---|---------------------|-----------------|-------------------|---------------------|-----------------|---------------------|-----------------|
| Location: RWP/WP | | Survey # | | Survey Type: | | Page 6 of 21 | |
| Nuclear Reactor Facility outside | | UVA-FS-053E | | Final Status Survey | | | |
| Comments: | Surveyed By: | Date: | Instrument | Serial # | Cal. Due | Probe Area | Serial # |
| Final Status Survey of Main Building Roof | Alice Thompson | 07/18/03 | Tennelec | 64052 | 4/16/2004 | n/a n/a | n/a |
| | Jason Strand | 07/15/03 | M-2221 | 172051 | 4/2/2004 | 43-68 126 | 116718 |
| Survey Unit 49 | Brad Myers | 07/15/03 | M-2221 | 157031 | 3/17/2004 | 44-10 | n/a 155202 |
| Final Status Survey Addendum 006 | Reviewed By: | Date: | | | | | |
| | Frank Myers | 07/18/03 | | | | | |

Key: ○ = Smear xxx to xxx = Direct Frsk △ = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Sleep Off Pad x/y = contact/12" dose rate # = General dose rate

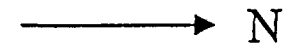
| Smears | | | | Static Count β | | | | Coordinates | | | | | |
|--------|-----------|---|------------------------|----------------|-----|---------------|-----|------------------------|-----|-----|-------|------|-----------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded | | DPM/100cm ² | | No. | North | East | Elevation |
| | α | β | α | β | | CPM | Net | Lc | | | | | |
| 201 | See | | | | 201 | 394 | 250 | 1.068 | 273 | 201 | 15 | 55.5 | -5.4 |
| 202 | Attached | | | | 202 | 320 | 235 | 630 | 265 | 202 | 4 | 55.5 | -5.4 |
| 203 | Report | | | | 203 | 353 | 225 | 949 | 259 | 203 | 0.25 | 57.5 | -5.4 |
| 204 | | | | | 204 | 385 | 201 | 1.365 | 245 | 204 | 2.75 | 57.5 | -5.4 |
| 205 | | | | | 205 | 383 | 288 | 705 | 293 | 205 | 5.25 | 57.5 | -5.4 |
| 206 | | | | | 206 | 336 | 184 | 1.127 | 234 | 206 | 1.5 | 59.5 | -5.4 |
| 207 | | | | | 207 | 216 | 217 | -7 | 255 | 207 | 4 | 59.5 | -5.4 |
| QC | | | | | QC | 326 | 206 | 890 | 248 | QC | 4 | 59.5 | -5.4 |

Building Roof 1 meter grid

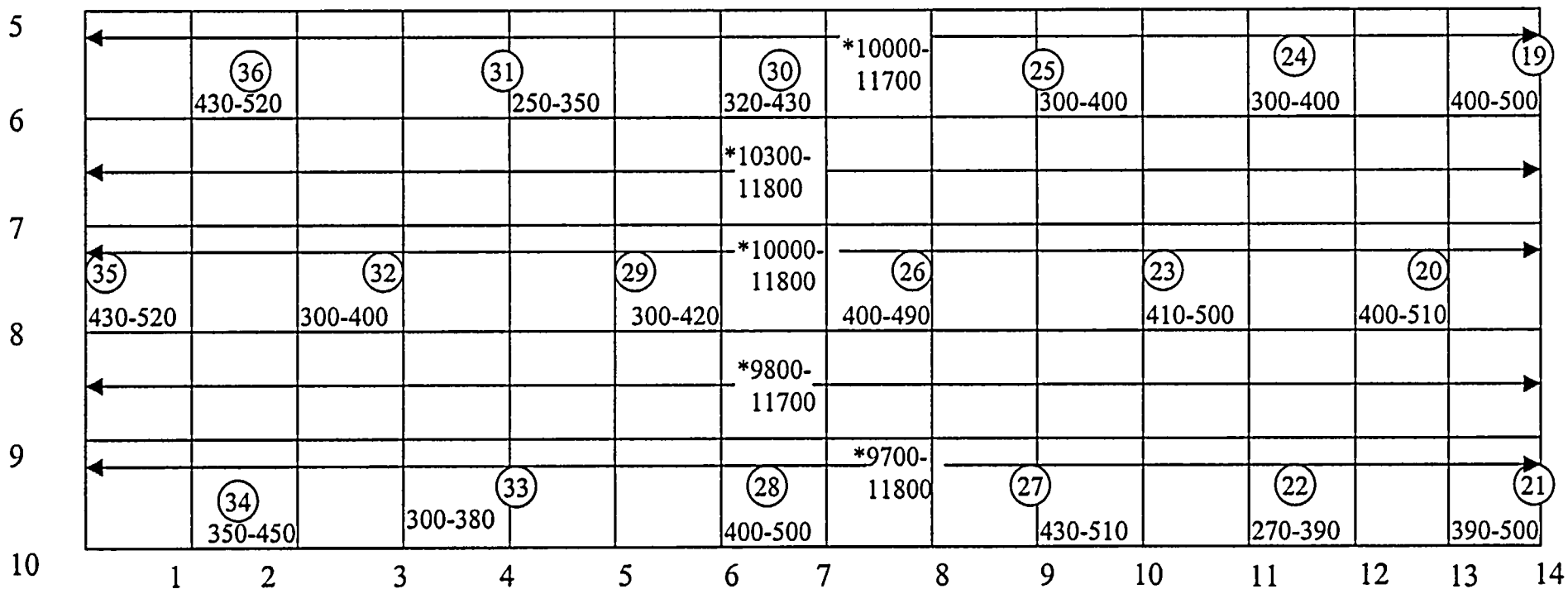


Survey # UVA-FS-053
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-09-03

Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations

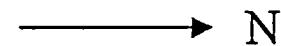


Building Roof 1 meter grid

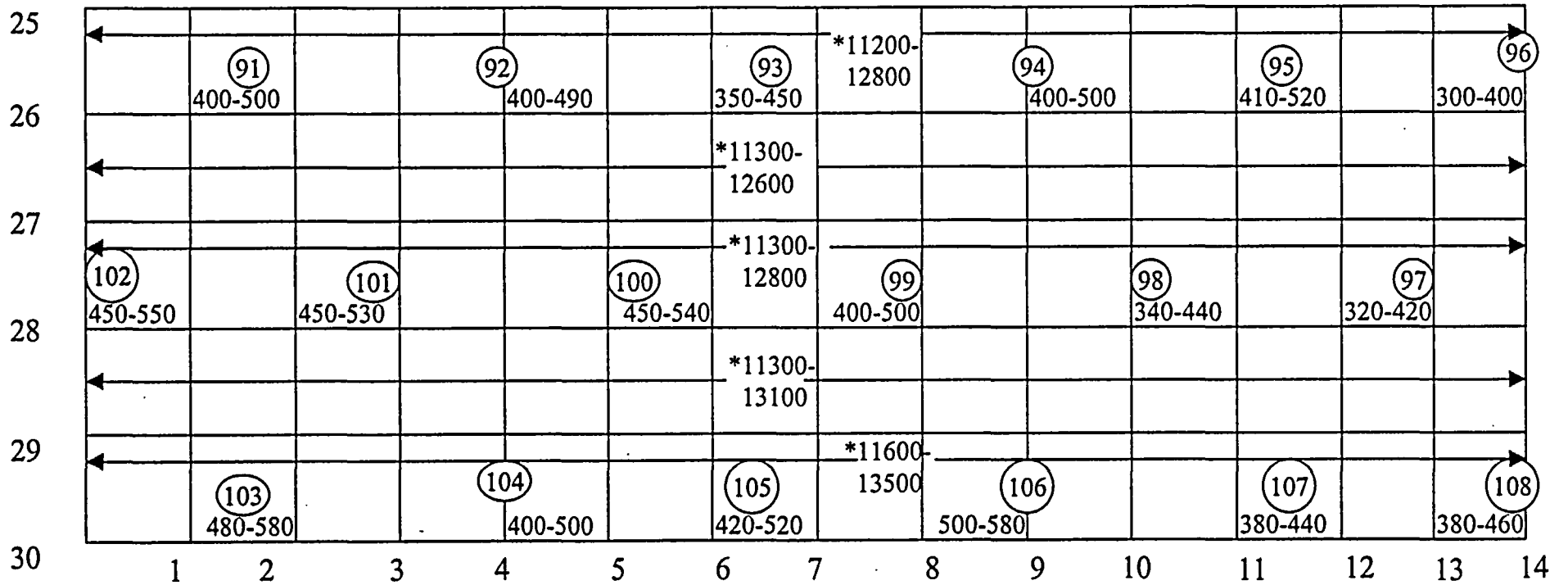


Survey # UVA-FS-053
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-10-03

Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations

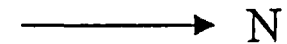


Building Roof 1 meter grid

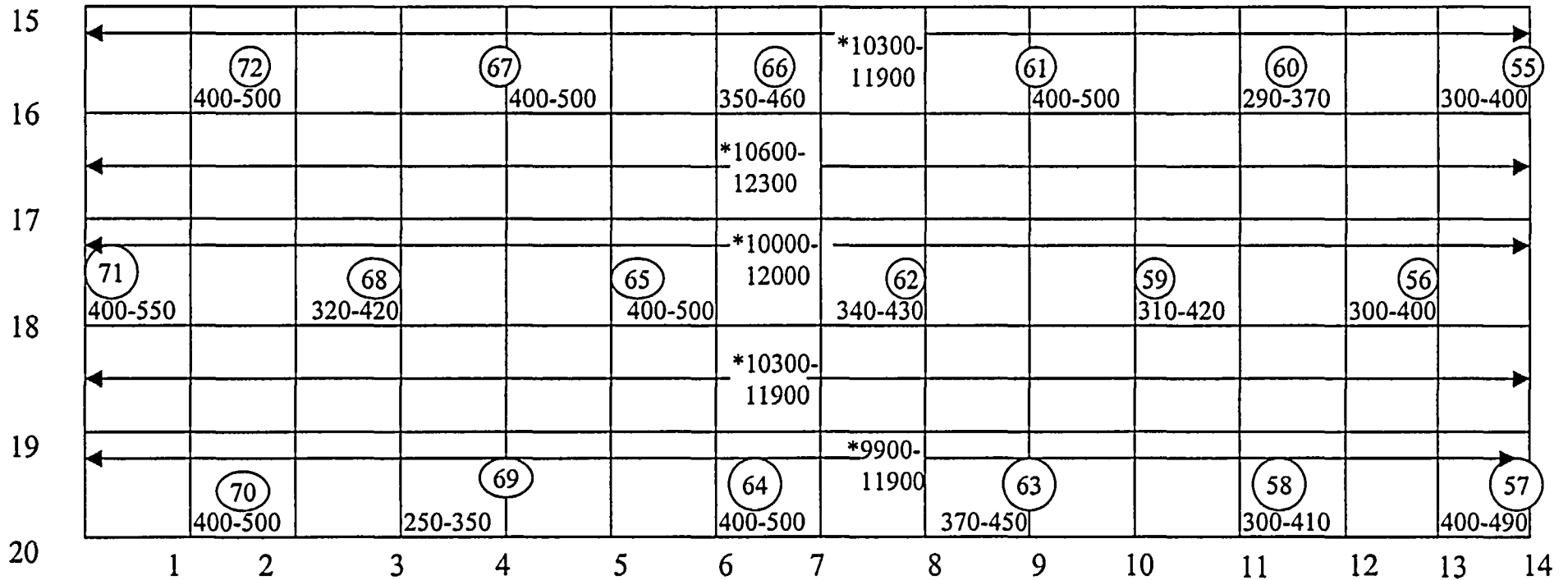


Survey # UVA-FS-053
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-11-03

Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations



Building Roof 1 meter grid

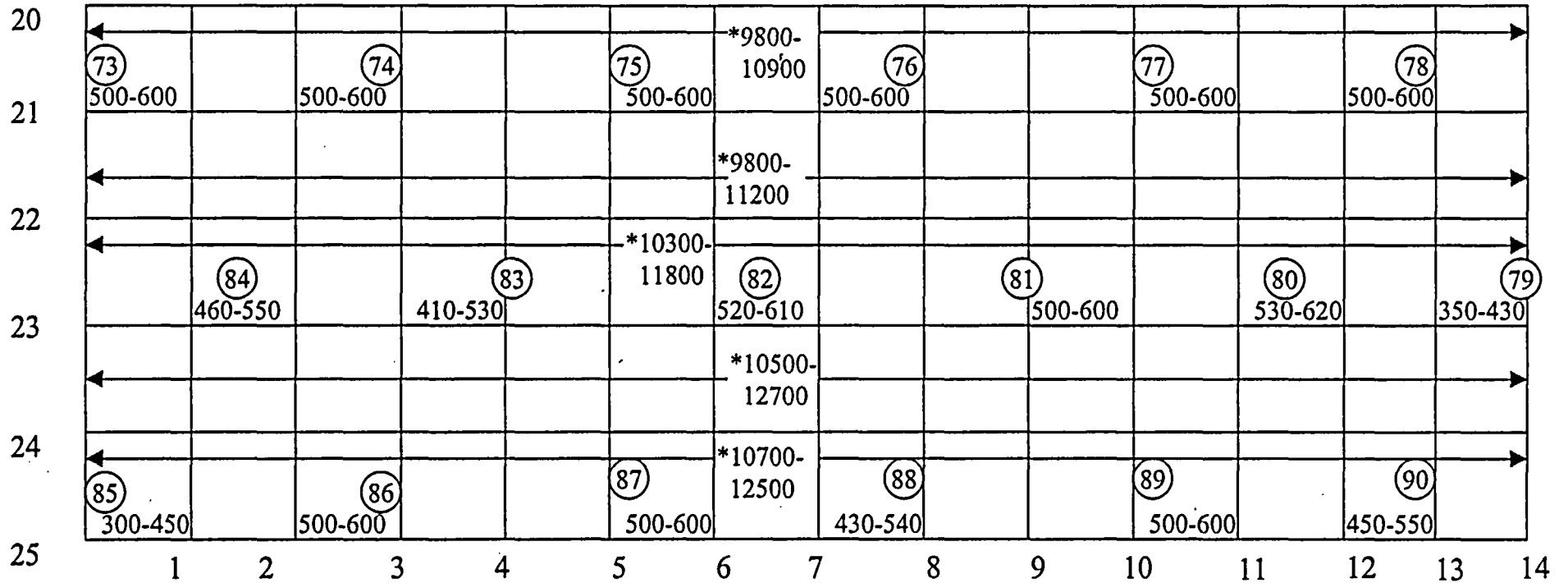


Survey # UVA-FS-053
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-11-03

Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations



Building Roof 1 meter grid

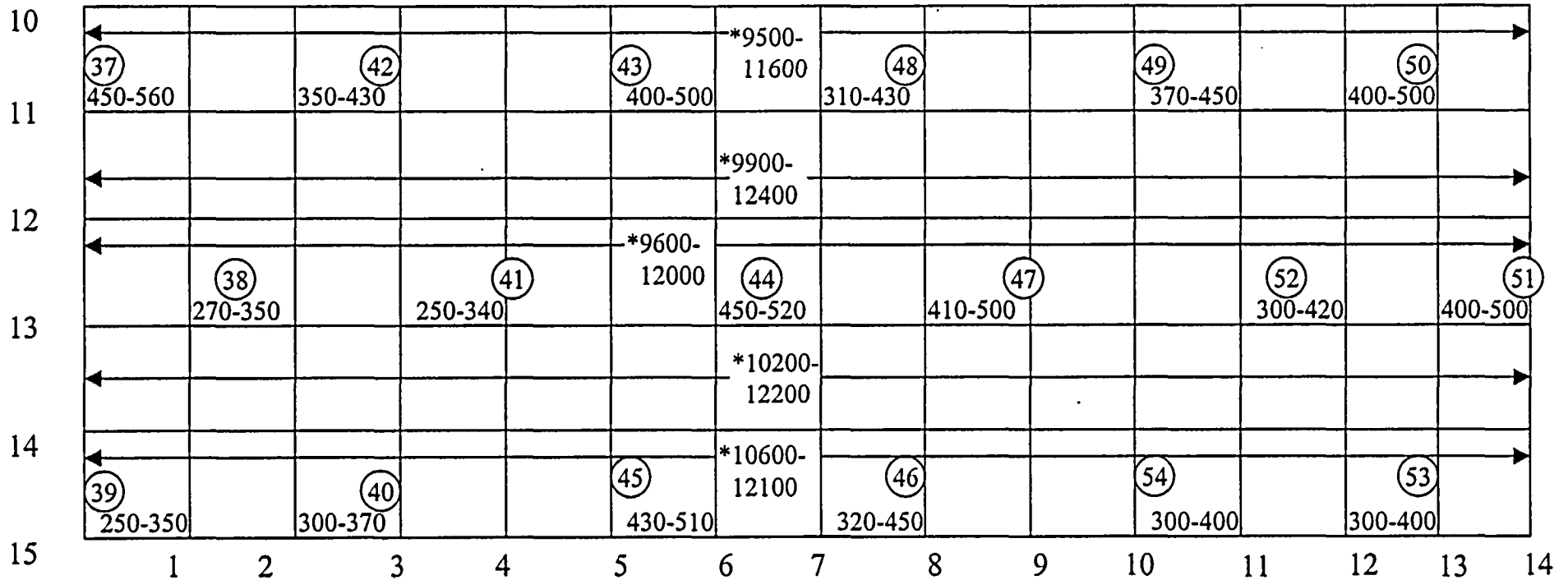


Survey # UVA-FS-053
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-11-03

Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations



Building Roof 1 meter grid

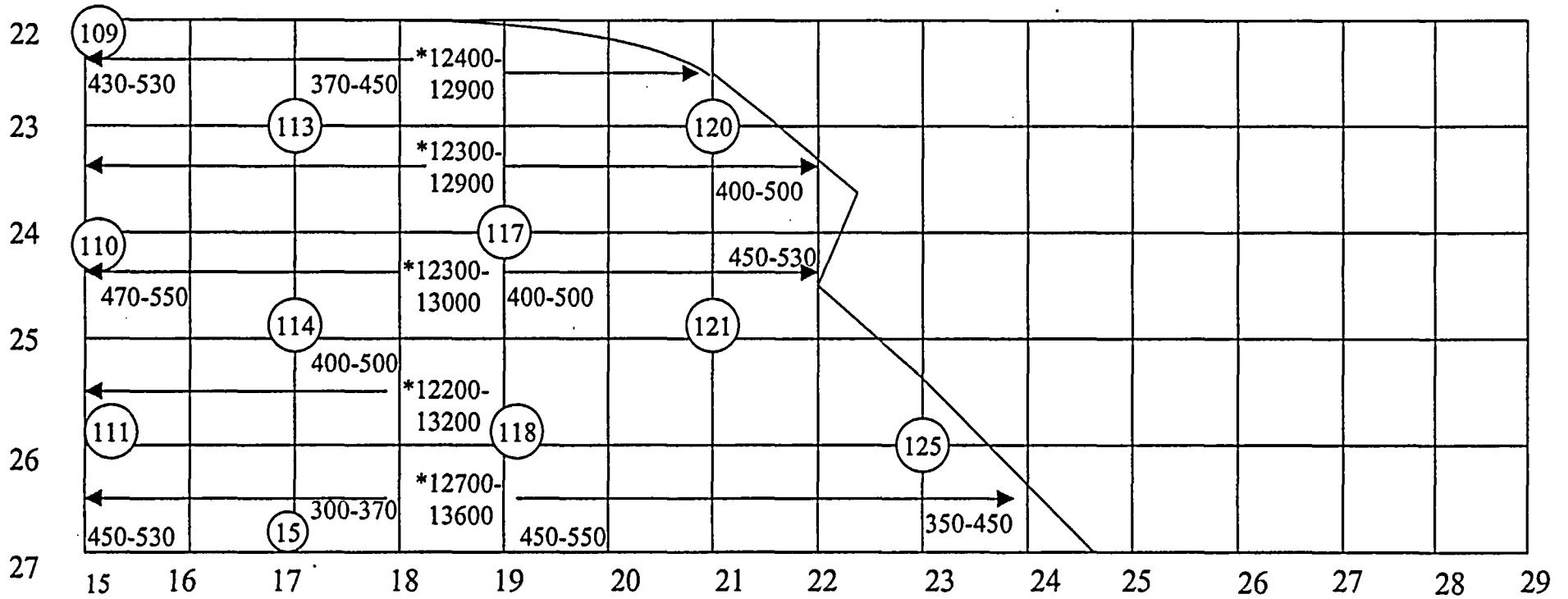


Survey # UVA-FS-053
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-10-03

Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations

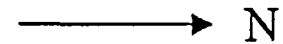


Building Roof 1 meter grid

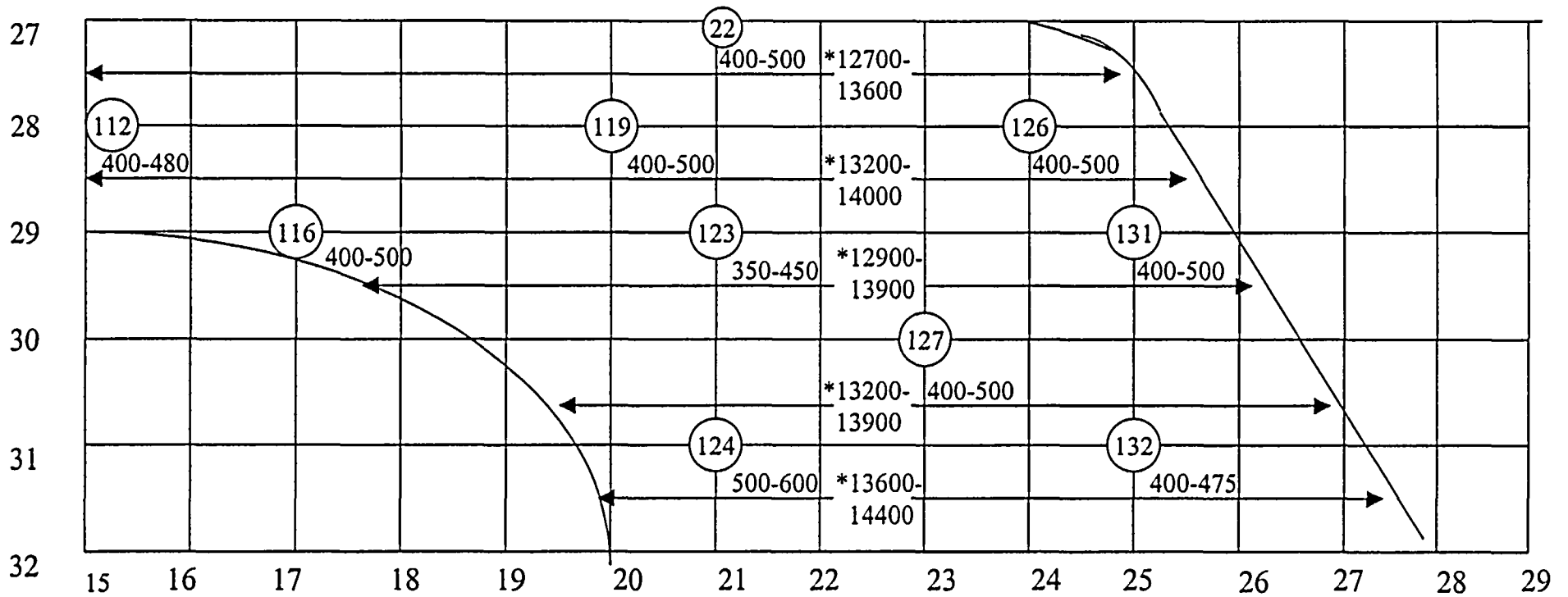


Survey # UVA-FS-053
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-12-03

Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations



Building Roof 1 meter grid

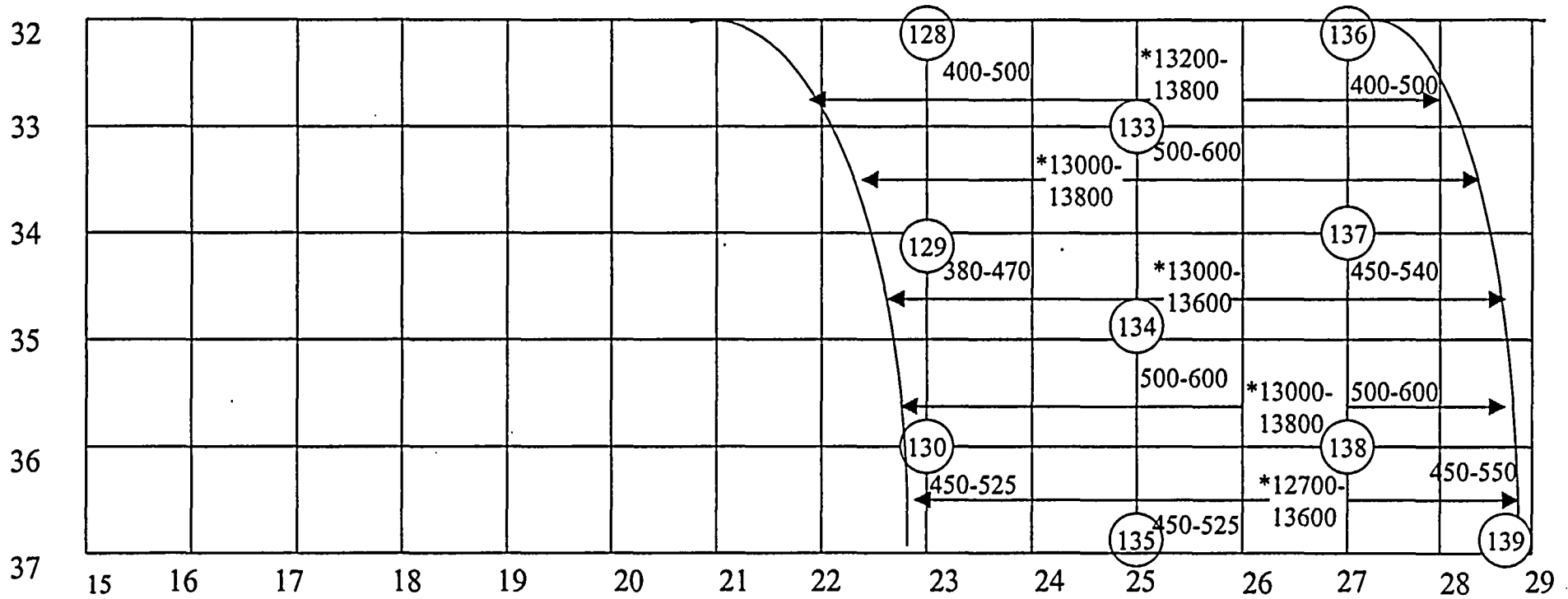


Survey # UVA-FS-053
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-12-03

Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations

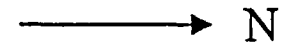


Building Roof 1 meter grid

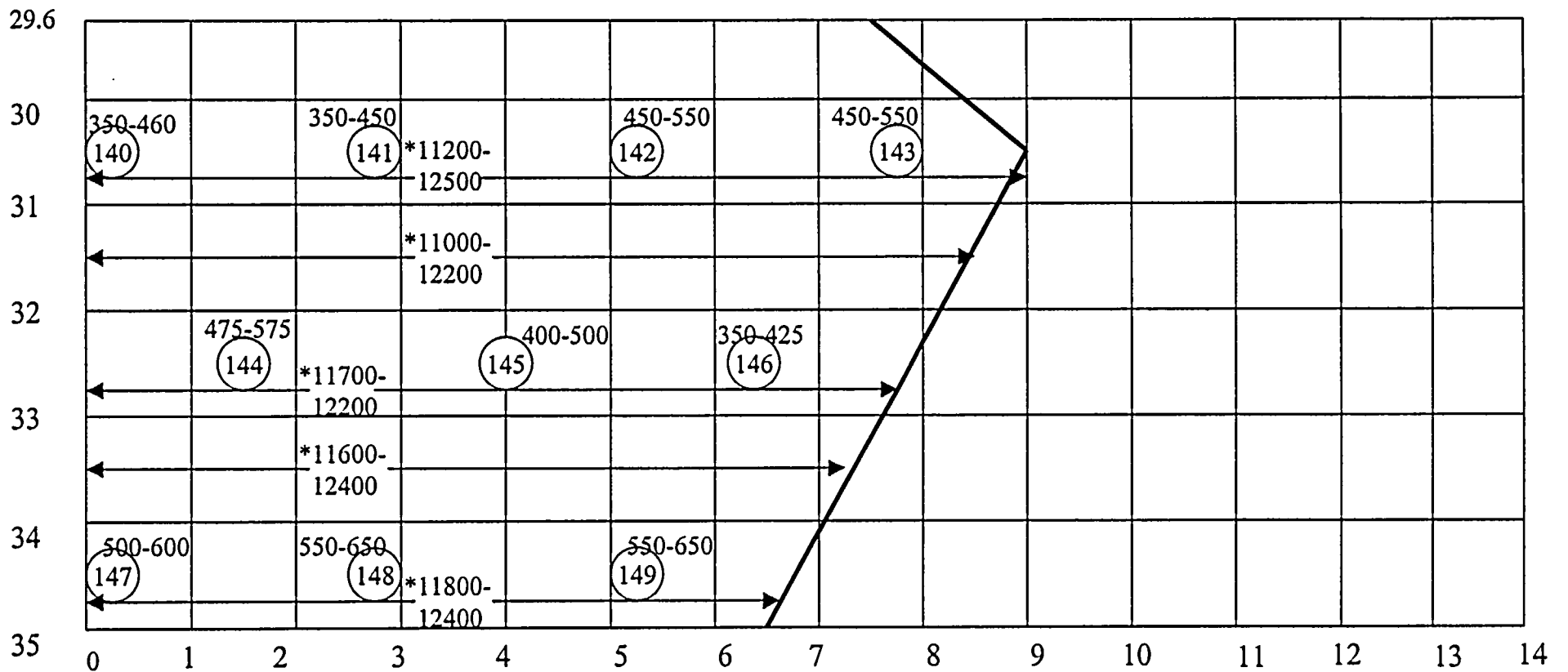


Survey # UVA-FS-053
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-12-03

Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations

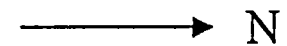


Building Roof 1 meter grid

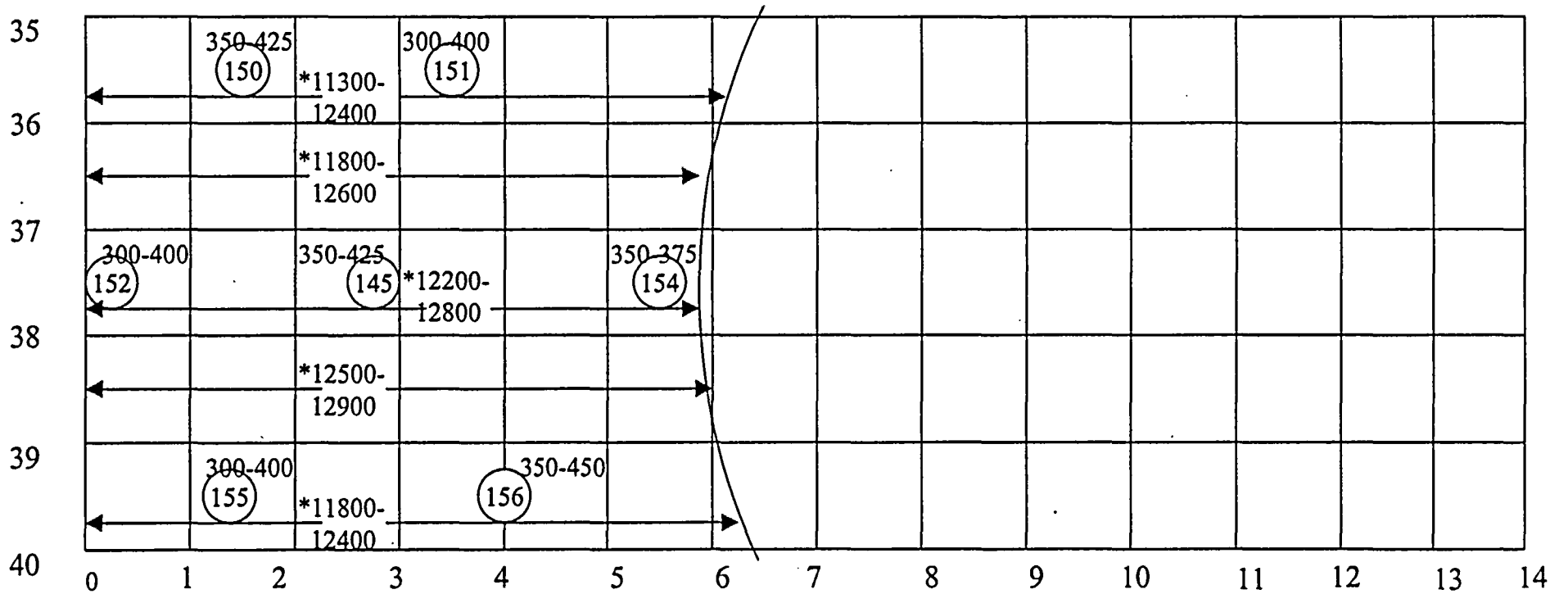


Survey # UVA-FS-053
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-14-03

Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations



Building Roof 1 meter grid

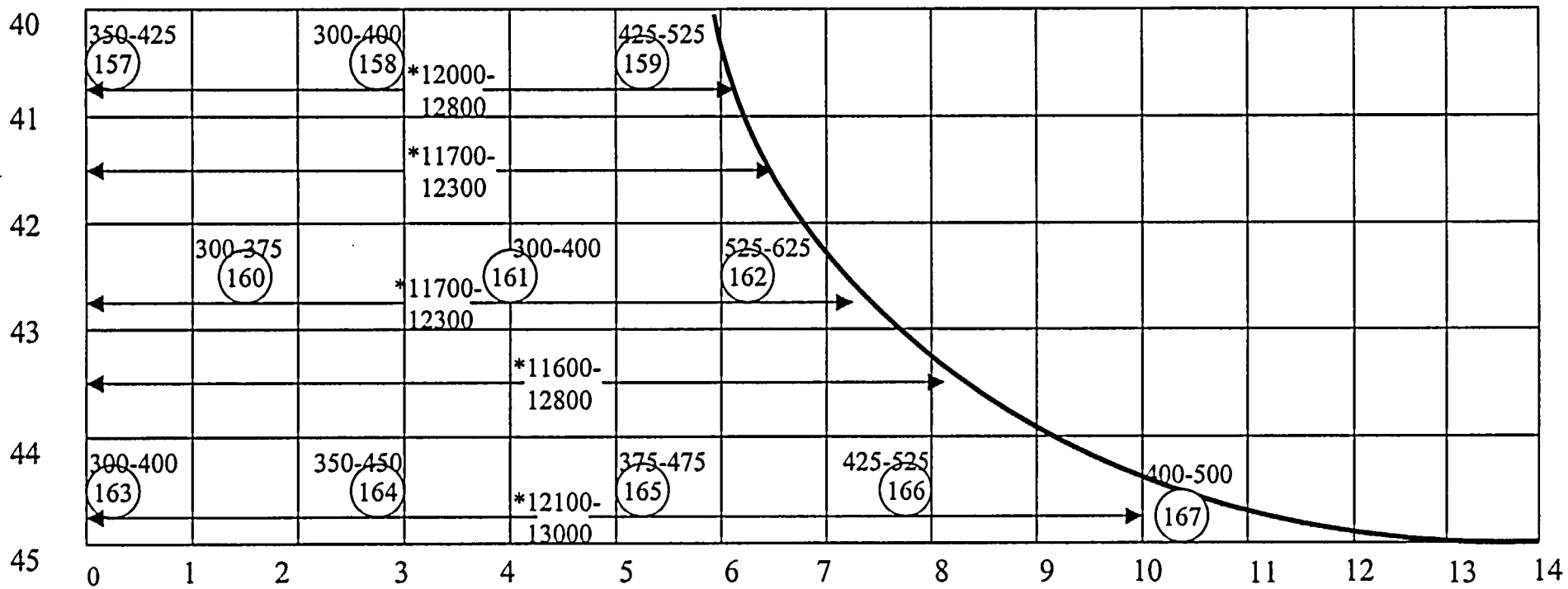


Survey # UVA-FS-053
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-15-03

Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations

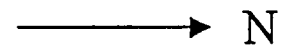


Building Roof 1 meter grid

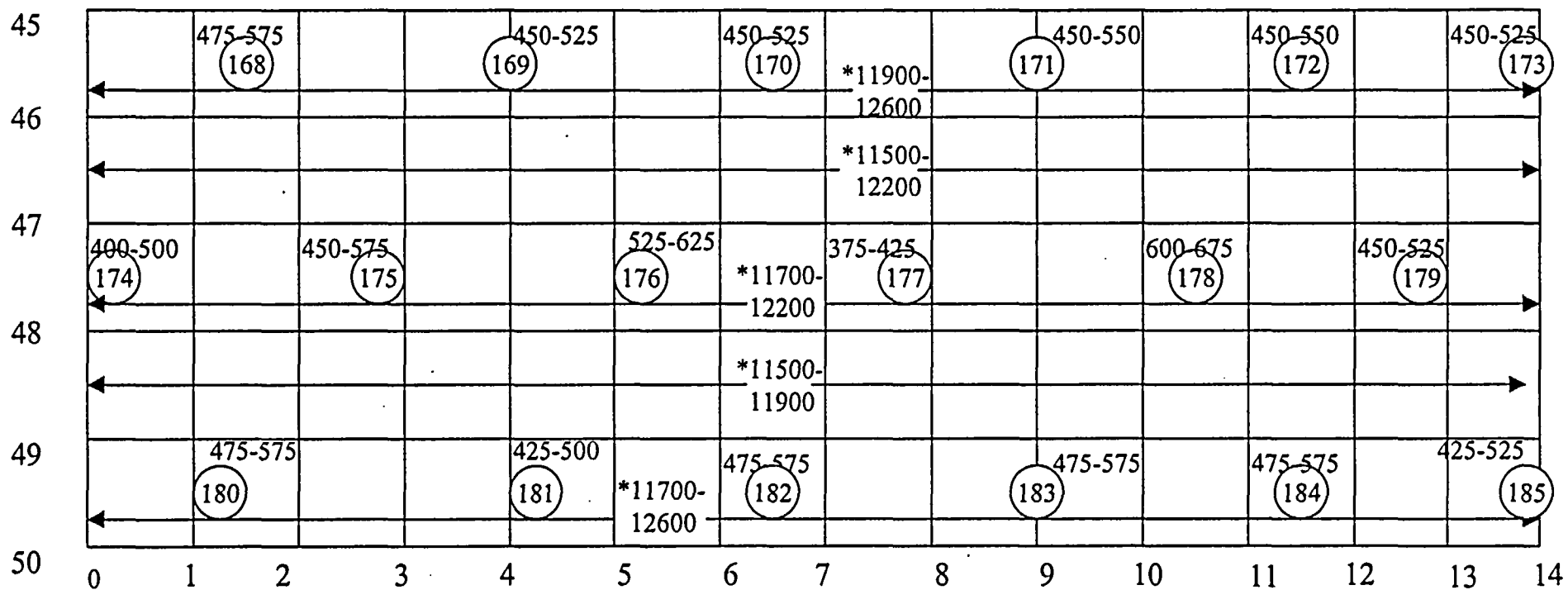


Survey # UVA-FS-053
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-15-03

Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations

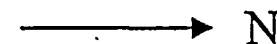


Building Roof 1 meter grid

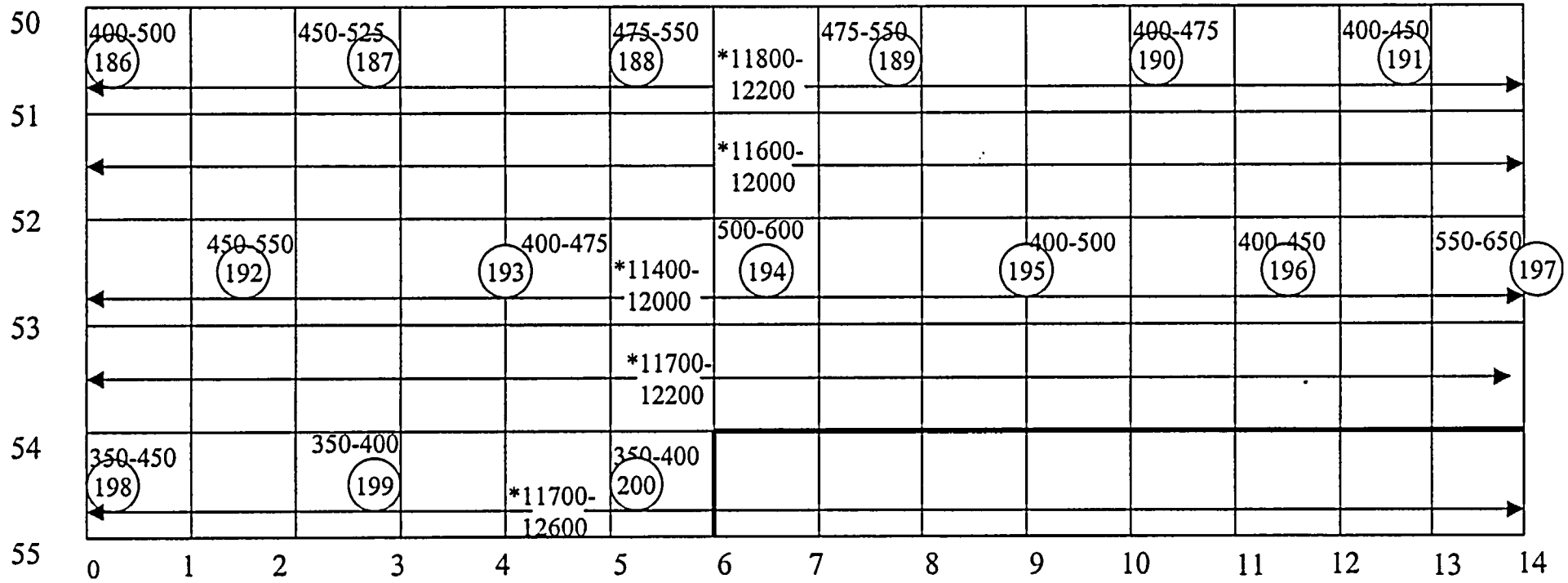


Survey # UVA-FS-053
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-15-03

Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations

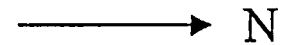


Building Roof 1 meter grid

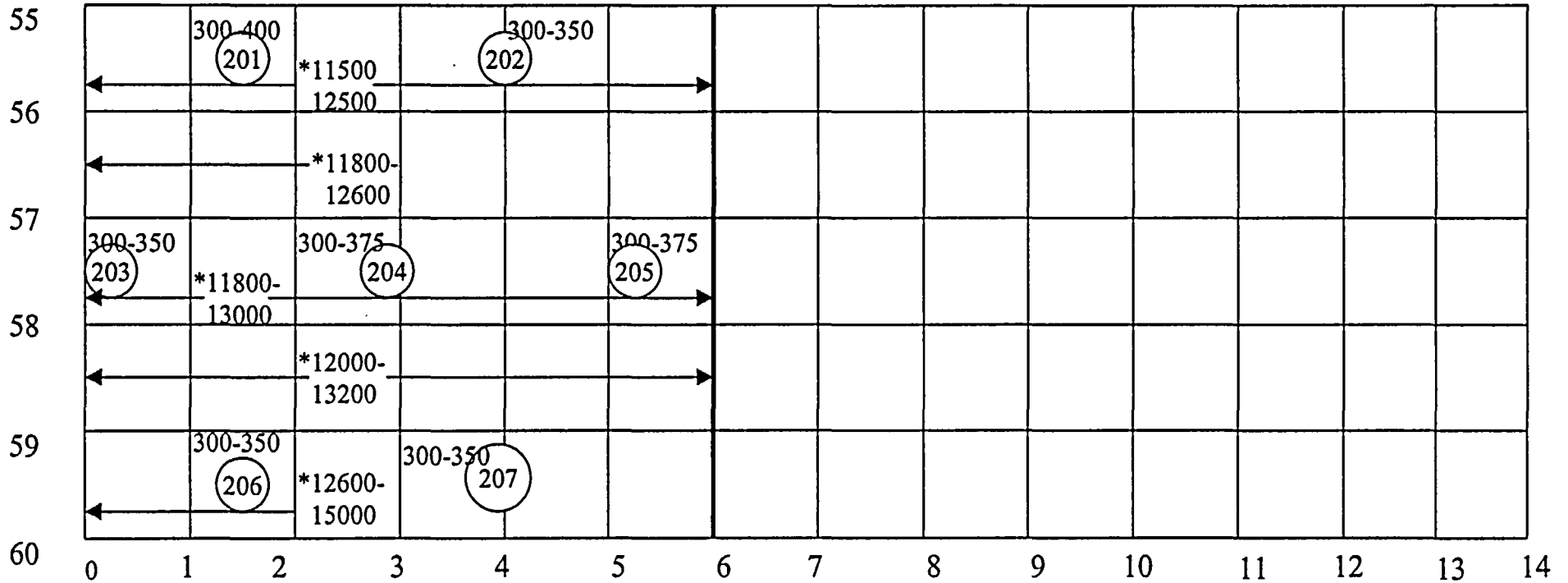


Survey # UVA-FS-053
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-15-03

Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations



Building Roof 1 meter grid



Survey # UVA-FS-053
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-15-03

Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations
 Hot Cell Roof elevated counts due to
 PuBe source stored in Hot Cell.





UVAP Radiological Survey Form

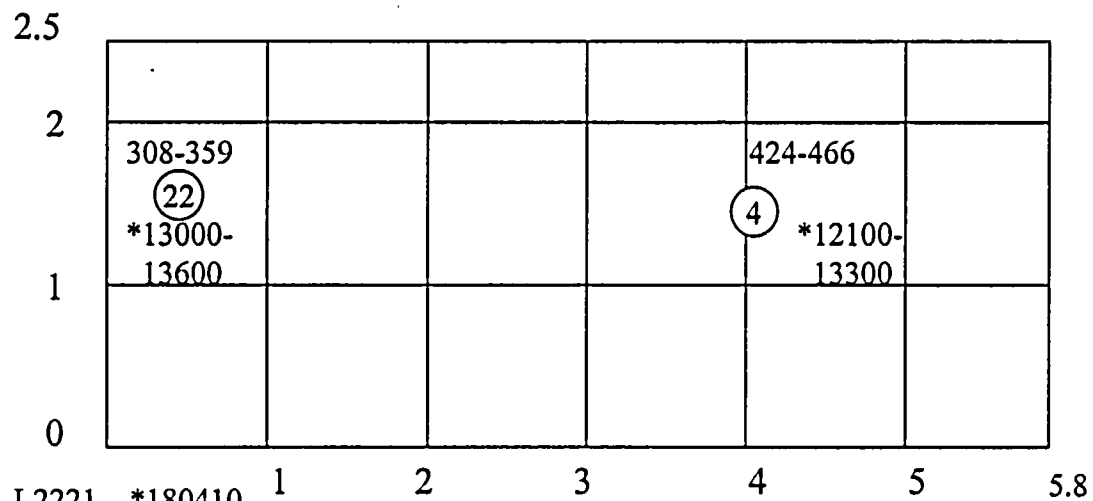
| | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--|--|--|--|---|--|--|--|---|--|--|--|---|--|--|--|--|--|--|--|--|
| Location: Nuclear Reactor Inside | RWP/WP | Survey # UVA-FS-054 | Survey Type: Final Status Survey | Page 1 of 12 | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Comments: Final Status Survey of Rooms 127, 128 and 130 Class 2 lower walls and floor Survey Unit 35 Final Status Survey Addendum 004 100% floor scan</td> <td style="width: 20%;">Surveyed By: Date: Alice Thompson 07/18/03 Bobby Leigh 07/17/03</td> <td style="width: 20%;">Instrument Serial # Tennelec 64052 M-2221 103942 M-2221 184010 M-2221 103942</td> <td style="width: 20%;">Cal. Due 4/16/2004 3/27/2004 3/24/2004 3/27/2004</td> <td style="width: 10%;">Probe Area n/a n/a 43-68 126 44-10 43-37 430</td> <td style="width: 10%;">Serial # n/a 160790 150873 149715</td> <td style="width: 10%;">Cal. Due n/a 3/27/2004 3/24/2004 3/27/2004</td> <td style="width: 10%;">β Eff. n/a 0.109 n/a 0.114</td> <td style="width: 10%;">Max β Bkg Lc n/a 334 n/a n/a</td> </tr> <tr> <td colspan="2">Reviewed By: Date: Frank Myers 07/18/03</td> <td colspan="3"></td> <td colspan="2"></td> <td colspan="2"></td> </tr> </table> | | | | | Comments: Final Status Survey of Rooms 127, 128 and 130 Class 2 lower walls and floor Survey Unit 35 Final Status Survey Addendum 004 100% floor scan | Surveyed By: Date: Alice Thompson 07/18/03 Bobby Leigh 07/17/03 | Instrument Serial # Tennelec 64052 M-2221 103942 M-2221 184010 M-2221 103942 | Cal. Due 4/16/2004 3/27/2004 3/24/2004 3/27/2004 | Probe Area n/a n/a 43-68 126 44-10 43-37 430 | Serial # n/a 160790 150873 149715 | Cal. Due n/a 3/27/2004 3/24/2004 3/27/2004 | β Eff. n/a 0.109 n/a 0.114 | Max β Bkg Lc n/a 334 n/a n/a | Reviewed By: Date: Frank Myers 07/18/03 | | | | | | | | |
| Comments: Final Status Survey of Rooms 127, 128 and 130 Class 2 lower walls and floor Survey Unit 35 Final Status Survey Addendum 004 100% floor scan | Surveyed By: Date: Alice Thompson 07/18/03 Bobby Leigh 07/17/03 | Instrument Serial # Tennelec 64052 M-2221 103942 M-2221 184010 M-2221 103942 | Cal. Due 4/16/2004 3/27/2004 3/24/2004 3/27/2004 | Probe Area n/a n/a 43-68 126 44-10 43-37 430 | Serial # n/a 160790 150873 149715 | Cal. Due n/a 3/27/2004 3/24/2004 3/27/2004 | β Eff. n/a 0.109 n/a 0.114 | Max β Bkg Lc n/a 334 n/a n/a | | | | | | | | | | | | | | |
| Reviewed By: Date: Frank Myers 07/18/03 | | | | | | | | | | | | | | | | | | | | | | |

Key: = Smear xxx to xxx = Direct First = air sample = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad xy = contact/12" dose rate # = General dose rate

| Smears | | | | Static Count β | | | | Coordinates | | | | | |
|-----------|----------|------------------------|---|----------------|-----|------------------------|-----|-------------|-----|-------|------|-----------|------|
| Gross CPM | | DPM/100cm ² | | Unsh/Shielded | | DPM/100cm ³ | | | | | | | |
| No. | α | β | α | β | No. | CPM | Net | Lc | No. | North | East | Elevation | |
| 1 | See | | | | 1 | 512 | 357 | 1,129 | 321 | 1 | 0 | 2 | 1 |
| 2 | Attached | | | | 2 | 537 | 366 | 1,245 | 325 | 2 | 0 | 3 | 1 |
| 3 | Report | | | | 3 | 589 | 377 | 1,544 | 329 | 3 | 0 | 6 | 1 |
| 4 | | | | | 4 | 454 | 331 | 896 | 309 | 4 | 4 | -0.75 | 1.5 |
| 5 | | | | | 5 | 369 | 383 | -102 | 332 | 5 | 4 | 0.5 | 0 |
| 6 | | | | | 6 | 478 | 327 | 1,099 | 307 | 6 | 4 | 2.8 | 1.25 |
| 7 | | | | | 7 | 458 | 364 | 684 | 324 | 7 | 4 | 2.9 | 1.25 |
| 8 | | | | | 8 | 457 | 388 | 502 | 334 | 8 | 4 | 4.5 | 0 |
| 9 | | | | | 9 | 482 | 337 | 1,056 | 311 | 9 | 4 | 7.5 | 0 |
| QC | | | | | QC | 467 | 363 | 757 | 323 | QC | 4 | 7.5 | 0 |
| 10 | | | | | 10 | 333 | 347 | -102 | 316 | 10 | 4 | 9 | 1.5 |
| 11 | | | | | 11 | 548 | 367 | 1,318 | 325 | 11 | 5.8 | -1 | 1 |
| 12 | | | | | 12 | 538 | 349 | 1,376 | 317 | 12 | 5.8 | 2 | 1 |
| 13 | | | | | 13 | 462 | 350 | 815 | 317 | 13 | 5.8 | 3 | 1 |
| 14 | | | | | 14 | 418 | 357 | 430 | 321 | 14 | 5.5 | 6 | 1.25 |
| 15 | | | | | 15 | 465 | 360 | 765 | 322 | 15 | 4 | 0.5 | 2.5 |
| 16 | | | | | 16 | 494 | 368 | 917 | 325 | 16 | 4 | 4.5 | 2.5 |
| 17 | | | | | 17 | 515 | 371 | 1,048 | 327 | 17 | 4 | 7.5 | 2.5 |
| 18 | | | | | 18 | 461 | 331 | 947 | 309 | 18 | 1 | 2 | 2.5 |
| 19 | | | | | 19 | 489 | 341 | 1,078 | 313 | 19 | 1 | 3 | 2.5 |
| 20 | | | | | 20 | 568 | 354 | 1,558 | 319 | 20 | 1 | 6 | 2.5 |
| 21 | | | | | 21 | 565 | 360 | 1,493 | 322 | 21 | 4.25 | 9 | 2.25 |
| 22 | | | | | 22 | 347 | 302 | 328 | 295 | 22 | 0.5 | 0 | 1.5 |
| 23 | | | | | 23 | 357 | 332 | 182 | 309 | 23 | 0.5 | 1.5 | 0 |
| QC | | | | | QC | 344 | 337 | 51 | 311 | QC | 0.5 | 1.5 | 0 |
| 24 | | | | | 24 | 477 | 388 | 648 | 334 | 24 | 0.5 | 5.5 | 0 |
| 25 | | | | | 25 | 580 | 377 | 1,478 | 329 | 25 | 0.5 | 8 | 1.5 |
| 26 | | | | | 26 | 333 | 357 | -175 | 321 | 26 | 2 | 1.5 | 0.5 |
| 27 | | | | | 27 | 361 | 344 | 124 | 315 | 27 | 2.1 | 1.5 | 1.5 |

Rooms 127 West Wall 1 meter grid

E=0



Survey # UVA-FS-054

Meter # L2221 103942 L2221 *180410

Probe # 43-68 160790 44-10 *150873

Date 7-17-03

Beta and Gamma Scans

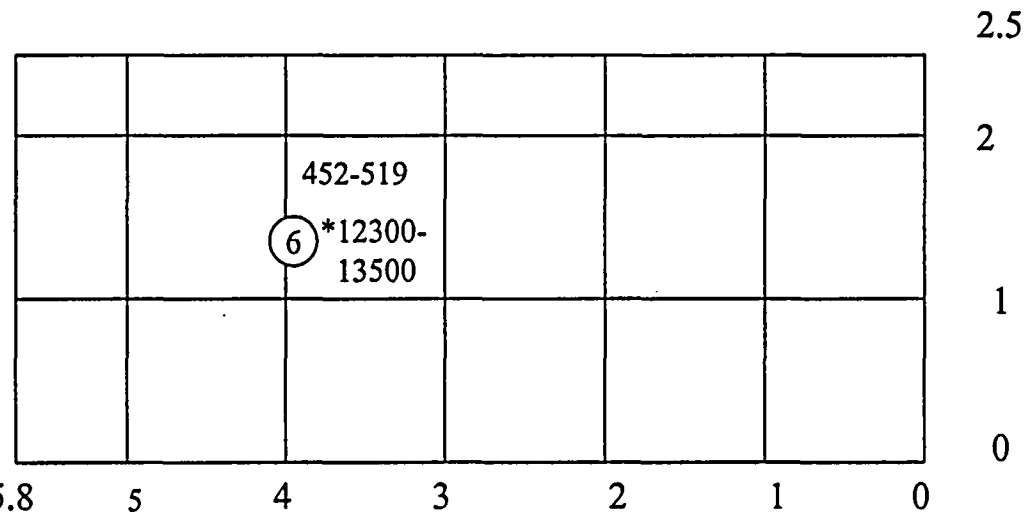
Readings in CPM

O denotes smear and static count locations.

N ←

Rooms 127 East Wall 1 meter grid

E=2.8



Survey # UVA-FS-054

Meter # L2221 106942 L2221 *184010

Probe # 43-68 160790 44-10 *150873

Date 7-17-03

Beta and Gamma Scans

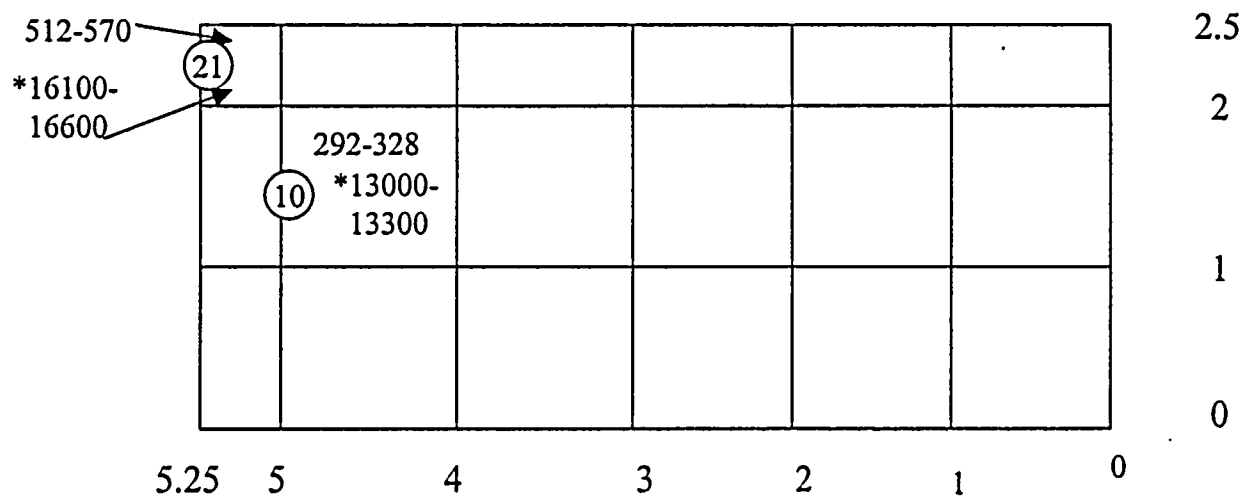
Readings in CPM

O denotes smear and static count location.

N ←

Room 128 East Wall 1 meter grid

E = 8 to 9



Survey # UVA-FS-054

Meter # L2221 103942 L2221 *184010

Probe # 43-68 160790 44-10 *150873

Date 7-17-03

Beta and Gamma Scans

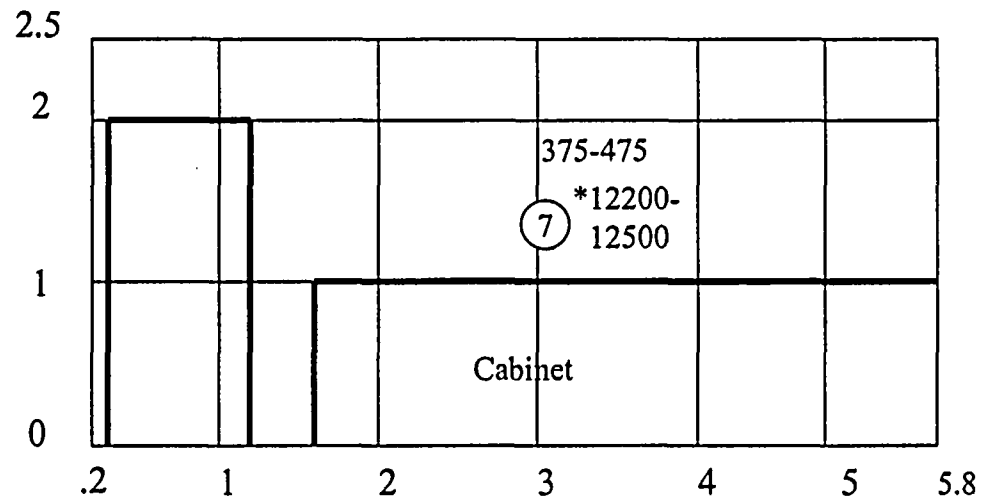
Readings in CPM

O denotes smear and static count locations.



Room 128 West Wall 1 meter grid

E = 2.9



Survey # UVA-FS-054

Meter # L2221 103942 L2221 *184010

Probe # 43-68 160790 44-10 *150873

Date 7-17-03

Beta and Gamma Scans

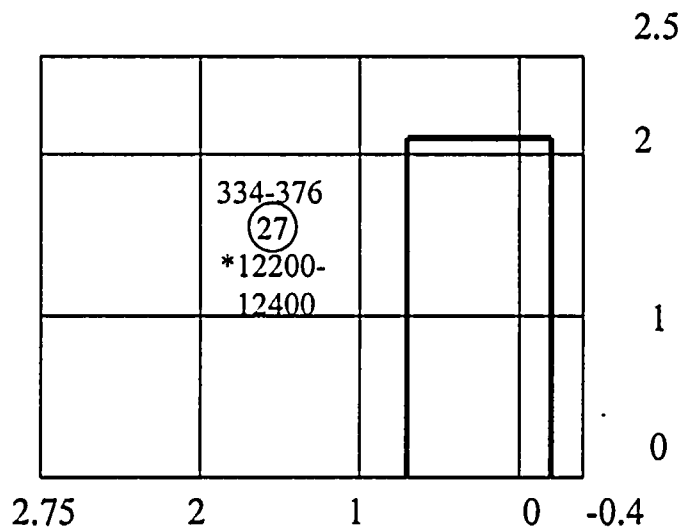
Readings in CPM

O denotes smear and static count location.



Rooms 127 South Inner Wall 1 meter grid

N = 2.1



Survey # UVA-FS-054

Meter # L2221 103942 L2221 *184010

Probe # 43-68 160790 44-10 *150873

Date 7-17-03

Beta and Gamma Scans

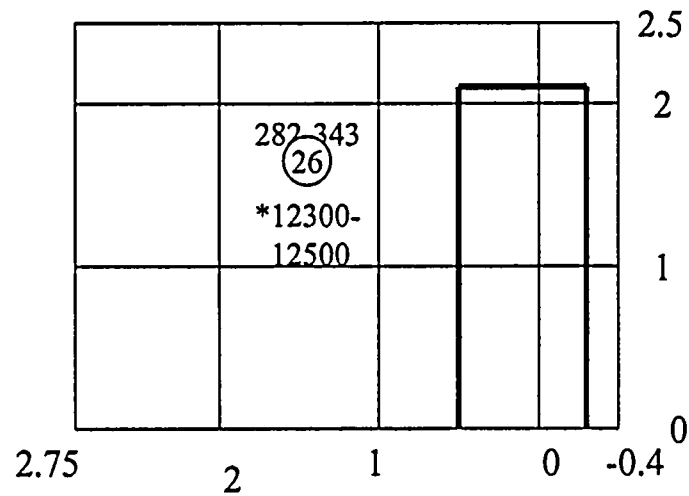
Readings in CPM

O denotes smear and static count location.

N ←

Rooms 130 North Wall 1 meter grid

N = 2



Survey # UVA-FS-054

Meter # L2221 103942 L2221 *184010

Probe # 43-68 160790 44-10 *150873

Date 7-17-03

Beta and Gamma Scans

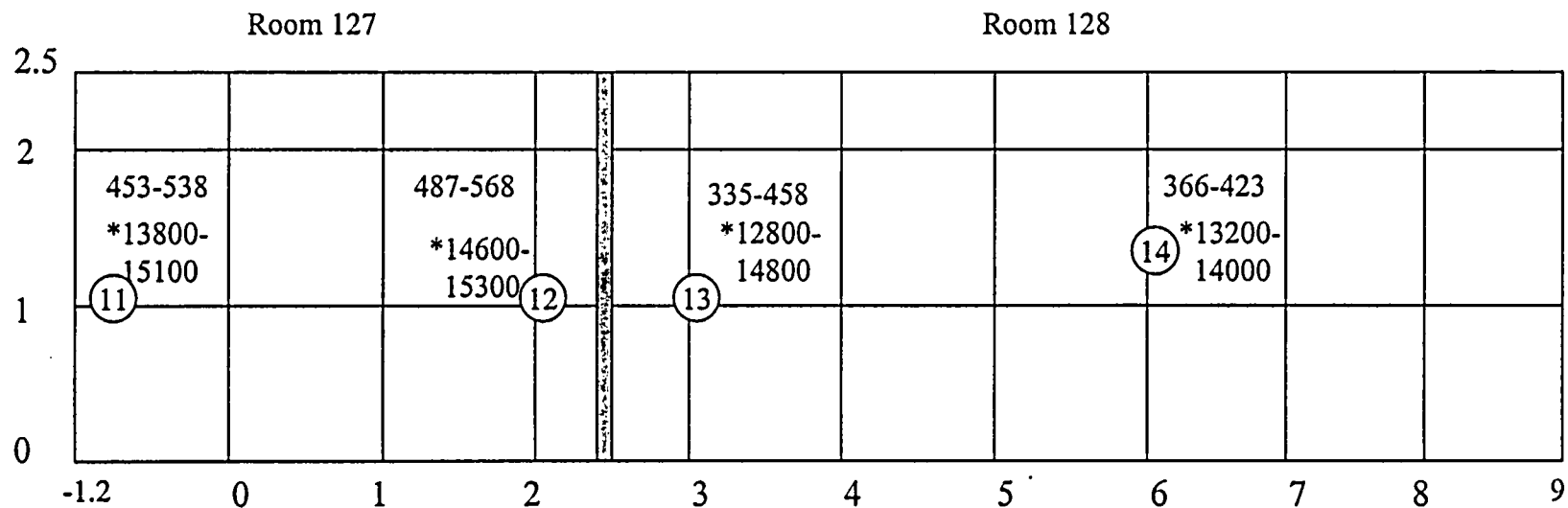
Readings in CPM

O denotes smear and static count location.

N ←

Rooms 127 and 128 North Wall 1 meter grid

N = 5.8



Survey # UVA-FS-054

Meter # L2221 103942 L2221 *184010

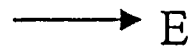
Probe # 43-68 160790 44-10 *150873

Date 7-17-03

Beta and Gamma Scans

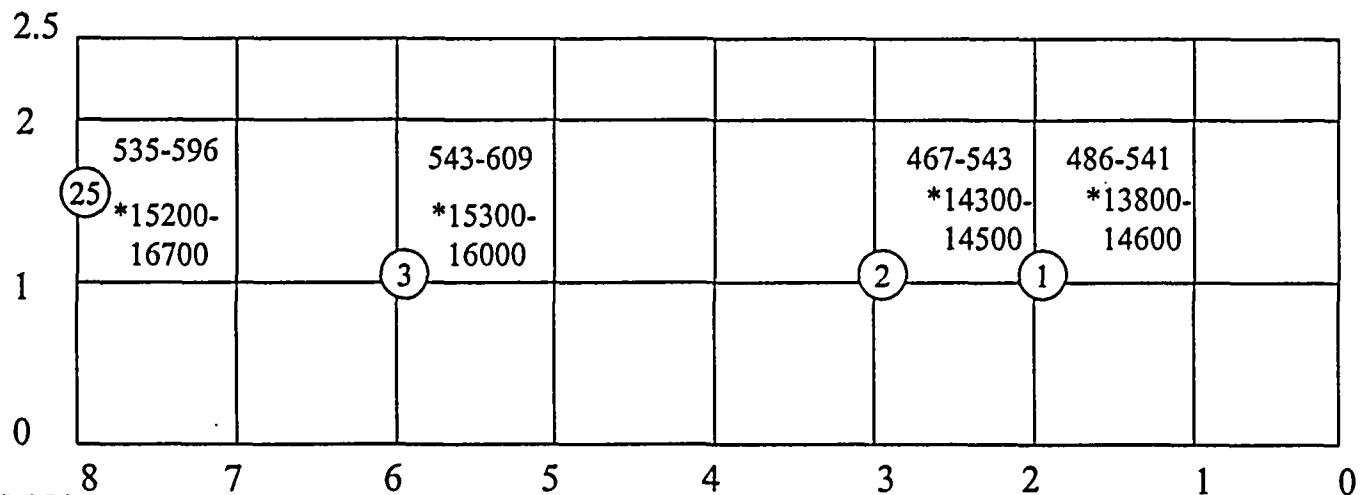
Readings in CPM

O deno smear and static count locations.



Rooms 127,128 and 130 South Wall 1 meter grid

N=0

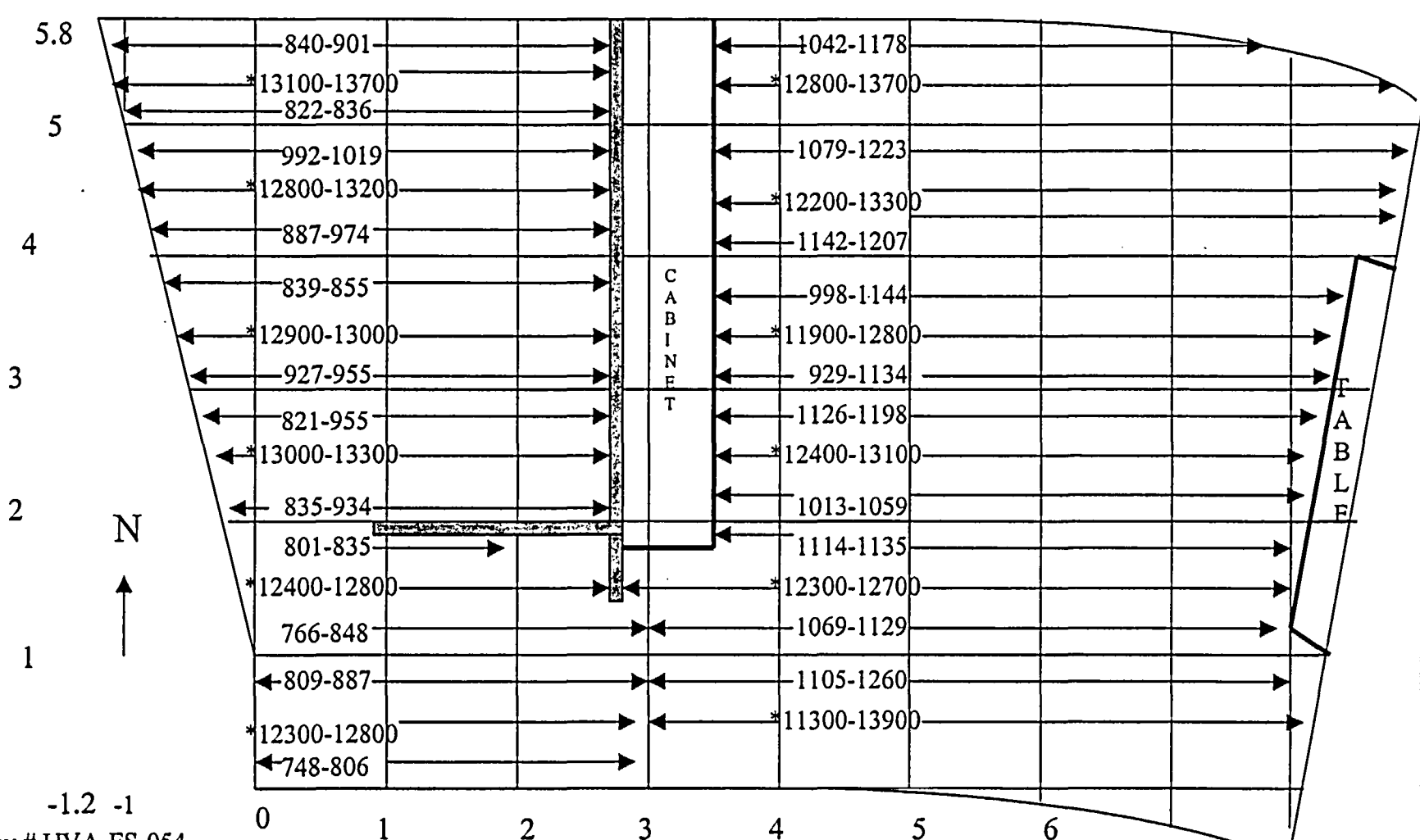


Survey # UVA-FS-054
 Meter # L2221 103942 L2221 *184010
 Probe # 43-68 160790 44-10 *150873
 Date 7-17-03
 Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations.

E ←

Rooms 127,128 and 130 Floor 1 meter grid

Z = 0



Survey # UVA-FS-054

Meter # L221 103942 L221 *184010

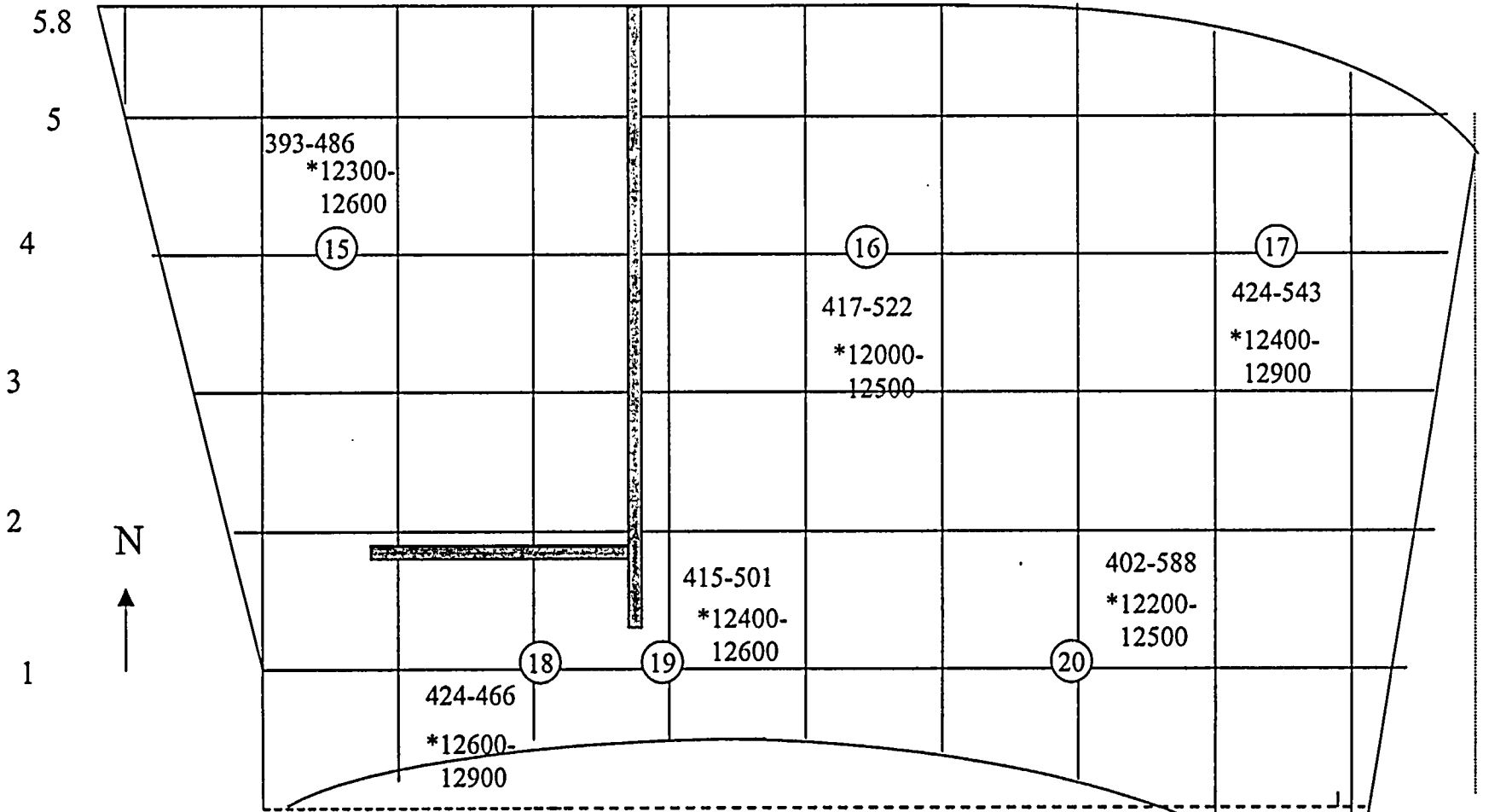
Probe # 43-37 149715 44-10 *150873

Date (7-17-03

Beta and Gamma Scans
Readings in CPM (

Rooms 127,128 and 130 Ceiling 1 meter grid

Z = 2.5

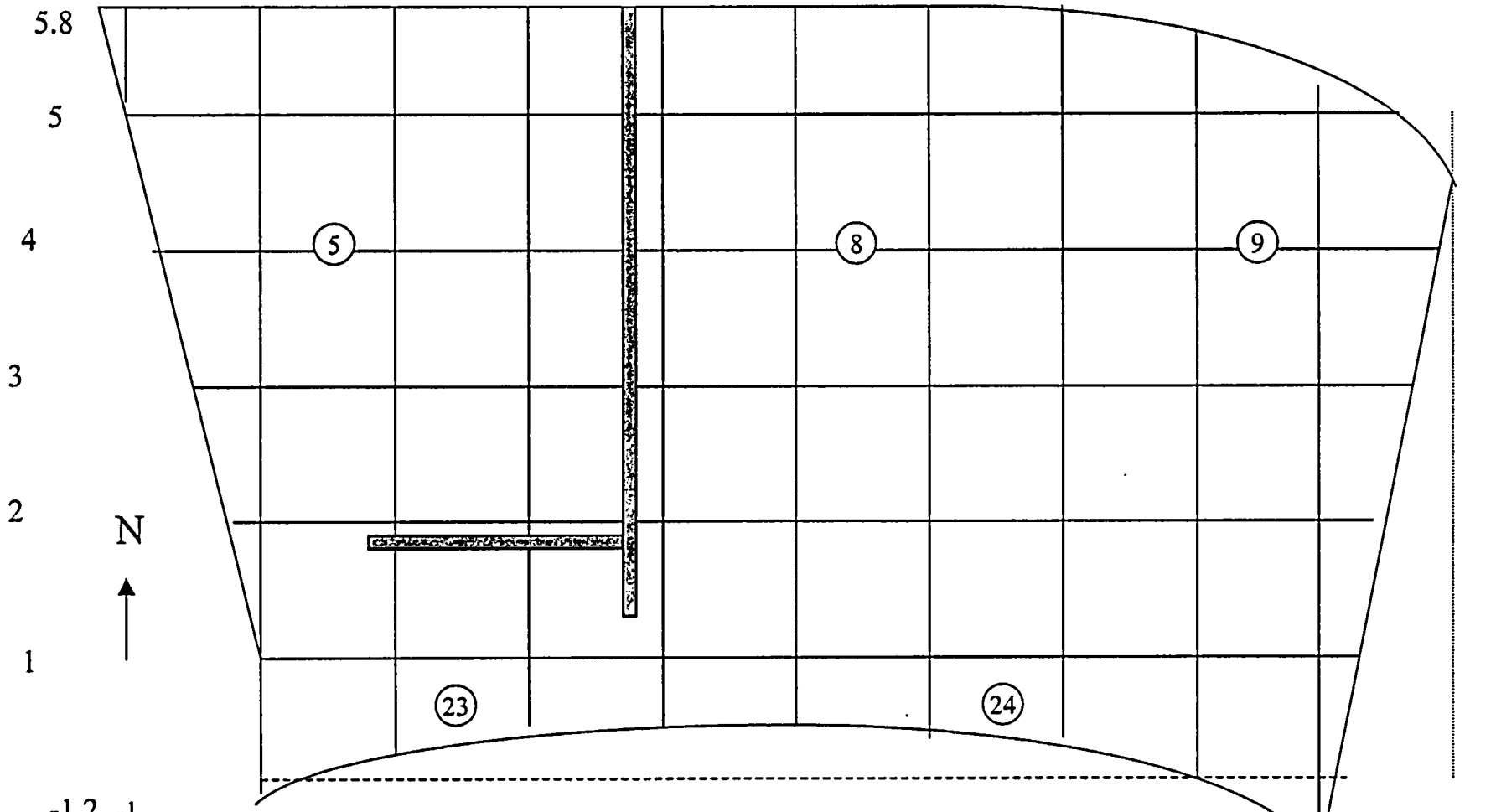


Survey #UVA-FS-054
 Meter # L2221 103942
 Probe # 43-68 160790
 Date 7-17-03

Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations

Rooms 127,128 and 130 Floor 1 meter grid

Z = 0



Survey #UVA-FS-054

Meter # L2221 103942

Probe # 43-68 160790

Date 17-03

L2221

44-10

*184010

*150873

Beta and Gamma Scans

Readings in CPM

O denotes smear and static count locations

(

6

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8

-1

9

(



UVAP Radiological Survey Form

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|----------------|-------------------------------|--|--------------|-----------|--------------|----------|------------|-----------|--------------|------------|----------|----------|--------|--------------|--|----------------|----------|----------|-------|-----------|-----|-----|-----|--|--|----------------|--------------|----------|--------|--------|----------|-------|-----|--------|----------|-------|-----|----------------------------------|------------|----------|--------|--------|-----------|-------|-----|--------|-----------|-----|--|--|--------------|-------|--|--|--|--|--|--|--|--|--|-------------|----------|--|--|--|--|--|--|--|--|
| Location: Nuclear Reactor Inside | RWP/WP | Survey # UVA-FS-055 | Survey Type: Final Status Survey | Page 1 of 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Comments:</td> <td style="width: 15%;">Surveyed By:</td> <td style="width: 10%;">Date:</td> <td style="width: 10%;">Instrument</td> <td style="width: 10%;">Serial #</td> <td style="width: 10%;">Cal. Due</td> <td style="width: 10%;">Probe Area</td> <td style="width: 10%;">Serial #</td> <td style="width: 10%;">Cal. Due</td> <td style="width: 10%;">β Eff.</td> <td style="width: 10%;">Max β Bkg Lc</td> </tr> <tr> <td>Final Status Survey of Room 131 Reactor Containment Class 2 upper walls and ceiling.</td> <td>Alice Thompson</td> <td>07/21/03</td> <td>Tennelec</td> <td>64052</td> <td>4/16/2004</td> <td>n/a</td> <td>n/a</td> <td>n/a</td> <td></td> <td></td> </tr> <tr> <td>Survey Unit 34</td> <td>Jason Strand</td> <td>07/17/03</td> <td>M-2221</td> <td>172051</td> <td>4/2/2004</td> <td>43-68</td> <td>128</td> <td>116718</td> <td>4/2/2004</td> <td>0.109</td> <td>328</td> </tr> <tr> <td>Final Status Survey Addendum 004</td> <td>Brad Myers</td> <td>07/17/03</td> <td>M-2221</td> <td>157031</td> <td>3/17/2004</td> <td>44-10</td> <td>n/a</td> <td>155202</td> <td>3/17/2004</td> <td>n/a</td> <td></td> </tr> <tr> <td></td> <td>Reviewed By:</td> <td>Date:</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td>Frank Myers</td> <td>07/22/03</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | | | | | Comments: | Surveyed By: | Date: | Instrument | Serial # | Cal. Due | Probe Area | Serial # | Cal. Due | β Eff. | Max β Bkg Lc | Final Status Survey of Room 131 Reactor Containment Class 2 upper walls and ceiling. | Alice Thompson | 07/21/03 | Tennelec | 64052 | 4/16/2004 | n/a | n/a | n/a | | | Survey Unit 34 | Jason Strand | 07/17/03 | M-2221 | 172051 | 4/2/2004 | 43-68 | 128 | 116718 | 4/2/2004 | 0.109 | 328 | Final Status Survey Addendum 004 | Brad Myers | 07/17/03 | M-2221 | 157031 | 3/17/2004 | 44-10 | n/a | 155202 | 3/17/2004 | n/a | | | Reviewed By: | Date: | | | | | | | | | | Frank Myers | 07/22/03 | | | | | | | | |
| Comments: | Surveyed By: | Date: | Instrument | Serial # | Cal. Due | Probe Area | Serial # | Cal. Due | β Eff. | Max β Bkg Lc | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Final Status Survey of Room 131 Reactor Containment Class 2 upper walls and ceiling. | Alice Thompson | 07/21/03 | Tennelec | 64052 | 4/16/2004 | n/a | n/a | n/a | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Survey Unit 34 | Jason Strand | 07/17/03 | M-2221 | 172051 | 4/2/2004 | 43-68 | 128 | 116718 | 4/2/2004 | 0.109 | 328 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Final Status Survey Addendum 004 | Brad Myers | 07/17/03 | M-2221 | 157031 | 3/17/2004 | 44-10 | n/a | 155202 | 3/17/2004 | n/a | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Reviewed By: | Date: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Frank Myers | 07/22/03 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Key: ○ = Smear xxx to xxx = Direct Fnst △ = air sample B = beta dose rate in mRad/hr --X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | Static Count β | | | | Coordinates | | | |
|--------|----------|---|------------------------|----------------|-----|-----|------|-------------|-----------|--------|-------|
| No. | α | β | DPM/100cm ² | No. | CPM | Net | Lc | No. | Elevation | Linear | |
| 1 | See | | | 1 | 406 | 361 | 328 | 322 | 1 | 2.5 | 0 |
| 2 | Attached | | | 2 | 338 | 318 | 146 | 303 | 2 | 2.5 | 2.5 |
| 3 | Report | | | 3 | 341 | 289 | 379 | 288 | 3 | 2.5 | 5 |
| 4 | | | | 4 | 336 | 317 | 138 | 302 | 4 | 2.5 | 7.5 |
| 5 | | | | 5 | 383 | 313 | 510 | 300 | 5 | 2.5 | 10 |
| 6 | | | | 6 | 338 | 311 | 197 | 299 | 6 | 2.5 | 12.5 |
| 7 | | | | 7 | 388 | 358 | 204 | 321 | 7 | 4.5 | 1.25 |
| 8 | | | | 8 | 350 | 373 | -167 | 328 | 8 | 4.5 | 3.75 |
| 9 | | | | 9 | 361 | 315 | 335 | 301 | 9 | 4.5 | 6.25 |
| 10 | | | | 10 | 375 | 285 | 655 | 286 | 10 | 4.5 | 8.75 |
| 11 | | | | 11 | 349 | 302 | 342 | 295 | 11 | 4.5 | 11.25 |
| 12 | | | | 12 | 340 | 314 | 189 | 301 | 12 | 4.5 | 13.75 |
| 13 | | | | 13 | 400 | 325 | 546 | 306 | 13 | 6.5 | 0 |
| 14 | | | | 14 | 365 | 328 | 284 | 308 | 14 | 6.5 | 2.5 |
| 15 | | | | 15 | 358 | 330 | 204 | 308 | 15 | 6.5 | 5 |
| 16 | | | | 16 | 365 | 325 | 291 | 308 | 16 | 6.5 | 7.5 |
| 17 | | | | 17 | 362 | 337 | 182 | 311 | 17 | 6.5 | 10 |
| 18 | | | | 18 | 379 | 345 | 248 | 315 | 18 | 6.5 | 12.5 |
| 19 | | | | 19 | 363 | 339 | 175 | 312 | 19 | 7.5 | 1.25 |
| 20 | | | | 20 | 358 | 318 | 291 | 303 | 20 | 7.5 | 3.75 |
| QC | | | | QC | 355 | 316 | 284 | 302 | QC | 7.5 | 3.75 |
| 21 | | | | 21 | 380 | 355 | 182 | 320 | 21 | 7.5 | 6.25 |
| 22 | | | | 22 | 364 | 359 | 36 | 321 | 22 | 7.5 | 8.75 |
| 23 | | | | 23 | 351 | 320 | 228 | 303 | 23 | 7.5 | 11.25 |
| 24 | | | | 24 | 394 | 292 | 743 | 290 | 24 | 7.5 | 13.75 |
| 25 | | | | 25 | 332 | 312 | 146 | 300 | 25 | 9.5 | 0 |
| 26 | | | | 26 | 363 | 368 | -36 | 325 | 26 | 9.5 | 2.5 |
| 27 | | | | 27 | 366 | 298 | 495 | 293 | 27 | 9.5 | 5 |
| 28 | | | | 28 | 363 | 335 | 204 | 311 | 28 | 9.5 | 7.5 |
| 29 | | | | 29 | 347 | 338 | 66 | 312 | 29 | 9.5 | 10 |
| 30 | | | | 30 | 347 | 308 | 284 | 298 | 30 | 9.5 | 12.5 |
| 31 | | | | 31 | 361 | 285 | 553 | 286 | 31 | 11.5 | 1.25 |
| 32 | | | | 32 | 320 | 279 | 299 | 283 | 32 | 11.5 | 3.75 |
| 33 | | | | 33 | 365 | 370 | -36 | 326 | 33 | 11.5 | 6.25 |
| 34 | | | | 34 | 345 | 300 | 328 | 294 | 34 | 11.5 | 8.75 |
| 35 | | | | 35 | 344 | 293 | 371 | 290 | 35 | 11.5 | 11.25 |
| 36 | | | | 36 | 347 | 279 | 495 | 283 | 36 | 11.5 | 13.75 |
| 37 | | | | 37 | 353 | 303 | 364 | 295 | 37 | 2.5 | 15 |
| 38 | | | | 38 | 304 | 325 | -153 | 306 | 38 | 2.5 | 17.5 |
| 39 | | | | 39 | 307 | 296 | 87 | 291 | 39 | 2.5 | 20 |
| 40 | | | | 40 | 228 | 242 | -102 | 264 | 40 | 2.5 | 22.5 |
| QC | | | | QC | 270 | 249 | 153 | 268 | QC | 2.5 | 22.5 |



**UVAP
Radiological Survey Form**

| | | | | | |
|--|----------------|----------|--------------------|----------------------------|--------------|
| Location: Nuclear Reactor Inside | | RWP/WP | Survey # | Survey Type: | Page 2 of 14 |
| | | | UVA-FS-055A | Final Status Survey | |
| Comments: | Surveyed By: | Date: | Instrument | Serial # | Cal. Due |
| Final Status Survey of Room 131 Reactor | Alice Thompson | 07/21/03 | Tennelec | 64052 | 4/16/2004 |
| Containment Class 2 upper walls and ceiling. | Jason Strand | 07/17/03 | M-2221 | 172051 | 4/2/2004 |
| Survey Unit 34 | Brad Myers | 07/17/03 | M-2221 | 157031 | 3/17/2004 |
| Final Status Survey Addendum 004 | Reviewed By: | Date: | | | |
| | Frank Myers | 07/22/03 | | | |

Key: = Smear xxx to xxx = Direct Frisk = air sample B = beta dose rate in mRad/hr --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | | Static Count β | | | | Coordinates | | | |
|--------|-----------|---|------------------------|---|----------------|-------------------|----------|------|-------------|-----|-----------|--------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded CPM | | Net | Lc | No. | Elevation | Linear |
| | α | β | α | β | | Unsh | Shielded | | | | | |
| 41 | See | | | | 41 | 346 | 299 | 342 | 293 | 41 | 25. | 25 |
| 42 | Attached | | | | 42 | 363 | 306 | 415 | 297 | 42 | 2.5 | 27.5 |
| 43 | Report | | | | 43 | 339 | 309 | 218 | 298 | 43 | 4.5 | 16.25 |
| 44 | | | | | 44 | 308 | 305 | 22 | 296 | 44 | 4.5 | 18.75 |
| 45 | | | | | 45 | 348 | 309 | 284 | 298 | 45 | 4.5 | 21.25 |
| 46 | | | | | 46 | 335 | 255 | 582 | 271 | 46 | 4.5 | 23.75 |
| 47 | | | | | 47 | 309 | 304 | 36 | 296 | 47 | 4.5 | 26.25 |
| 48 | | | | | 48 | 364 | 342 | 160 | 314 | 48 | 6.5 | 15 |
| 49 | | | | | 49 | 352 | 309 | 313 | 298 | 49 | 6.5 | 17.5 |
| 50 | | | | | 50 | 319 | 310 | 66 | 299 | 50 | 6.5 | 20 |
| 51 | | | | | 51 | 363 | 314 | 357 | 301 | 51 | 6.5 | 22.5 |
| 52 | | | | | 52 | 344 | 331 | 95 | 309 | 52 | 6.5 | 25 |
| 53 | | | | | 53 | 333 | 307 | 189 | 297 | 53 | 6.5 | 27.5 |
| 54 | | | | | 54 | 398 | 305 | 677 | 296 | 54 | 7.5 | 16.25 |
| 55 | | | | | 55 | 339 | 304 | 255 | 296 | 55 | 7.5 | 18.75 |
| 56 | | | | | 56 | 360 | 337 | 167 | 311 | 56 | 7.5 | 21.25 |
| 57 | | | | | 57 | 319 | 312 | 51 | 300 | 57 | 7.5 | 23.75 |
| 58 | | | | | 58 | 341 | 299 | 306 | 293 | 58 | 7.5 | 26.25 |
| 59 | | | | | 59 | 330 | 290 | 291 | 289 | 59 | 9.5 | 15 |
| 60 | | | | | 60 | 360 | 351 | 66 | 318 | 60 | 9.5 | 17.5 |
| QC | | | | | QC | 338 | 303 | 255 | 295 | QC | 9.5 | 17.5 |
| 61 | | | | | 61 | 348 | 277 | 517 | 282 | 61 | 9.5 | 20 |
| 62 | | | | | 62 | 365 | 333 | 233 | 310 | 62 | 9.5 | 22.5 |
| 63 | | | | | 63 | 304 | 325 | -153 | 306 | 63 | 9.5 | 25 |
| 64 | | | | | 64 | 311 | 289 | 160 | 288 | 64 | 9.5 | 27.5 |
| 65 | | | | | 65 | 378 | 286 | 655 | 287 | 65 | 11.5 | 16.25 |
| 66 | | | | | 66 | 335 | 297 | 277 | 292 | 66 | 11.5 | 18.75 |
| 67 | | | | | 67 | 366 | 325 | 299 | 306 | 67 | 11.5 | 21.25 |
| 68 | | | | | 68 | 274 | 262 | 87 | 275 | 68 | 11.5 | 23.75 |
| 69 | | | | | 69 | 354 | 288 | 481 | 288 | 69 | 11.5 | 26.25 |
| 70 | | | | | 70 | 344 | 283 | 444 | 285 | 70 | 2.5 | 30 |
| 71 | | | | | 71 | 354 | 307 | 342 | 297 | 71 | 2.5 | 32.5 |
| 72 | | | | | 72 | 339 | 299 | 291 | 293 | 72 | 2.5 | 35 |
| 7 | | | | | 73 | 369 | 294 | 546 | 291 | 73 | 2.5 | 37.5 |
| 74 | | | | | 74 | 314 | 310 | 29 | 299 | 74 | 2.5 | 40 |
| 75 | | | | | 75 | 328 | 301 | 197 | 294 | 75 | 4.5 | 28.75 |
| 76 | | | | | 76 | 338 | 343 | -36 | 314 | 76 | 4.5 | 31.25 |
| 77 | | | | | 77 | 332 | 274 | 422 | 281 | 77 | 4.5 | 33.75 |
| 78 | | | | | 78 | 354 | 304 | 364 | 296 | 78 | 4.5 | 36.25 |
| 79 | | | | | 79 | 324 | 354 | -218 | 319 | 79 | 4.5 | 38.75 |
| 80 | | | | | 80 | 353 | 300 | 386 | 294 | 80 | 4.5 | 41.25 |
| QC | | | | | QC | 348 | 311 | 269 | 299 | QC | 4.5 | 41.25 |



**UVAP
Radiological Survey Form**

| | | | | | | | | | | |
|---|---|---|--|---------------------------------------|--|-------------------------------------|-------------------------------------|--|-------------------------------------|---|
| Location: Nuclear Reactor Inside | RWPI/WP | Survey # UVA-FS-055B | Survey Type: Final Status Survey | Page 3 of 14 | | | | | | |
| Comments: Final Status Survey of Room 131 Reactor Containment Class 2 upper walls and ceiling. Survey Unit 34 Final Status Survey Addendum 004 | Surveyed By: Alice Thompson Jason Strand Brad Myers Reviewed By: Frank Myers | Date: 07/21/03 07/17/03 07/17/03 07/22/03 | Instrument Tennelec M-2221 M-2221 | Serial # 64052 172051 157031 | Cal. Due 4/16/2004 4/2/2004 3/17/2004 | Probe Area n/a 43-68 44-10 | Serial # n/a 116718 155202 | Cal. Due n/a 4/2/2004 3/17/2004 | β Eff. n/a 0.109 n/a | Max β Bkg Lc n/a 308 n/a |

Key: \circ = Smear xxx to xxx = Direct Frst Δ = air sample B = beta dose rate in mRad/hr --X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | Static Count β | | | | Coordinates | | | |
|--------|----------|---------|------------------------|----------------------|---------------|-----|-------|-------------|-----------|--------|-------|
| No. | α | β | DPM/100cm ² | No. | Unsh/Shielded | Net | Lc | No. | Elevation | Linear | |
| 81 | See | | | 81 | 348 | 326 | 160 | 306 | 81 | 6.5 | 30 |
| 82 | Attached | | | 82 | 337 | 313 | 175 | 300 | 82 | 6.5 | 32.5 |
| 83 | Report | | | 83 | 374 | 310 | 466 | 299 | 83 | 6.5 | 35 |
| 84 | | | | 84 | 335 | 257 | 568 | 272 | 84 | 6.5 | 37.5 |
| 85 | | | | 85 | 317 | 307 | 73 | 297 | 85 | 6.5 | 40 |
| 86 | | | | 86 | 346 | 297 | 357 | 292 | 86 | 7.5 | 28.75 |
| 87 | | | | 87 | 358 | 320 | 277 | 303 | 87 | 7.5 | 31.25 |
| 88 | | | | 88 | 343 | 320 | 167 | 303 | 88 | 7.5 | 33.75 |
| 89 | | | | 89 | 331 | 296 | 255 | 292 | 89 | 7.5 | 36.25 |
| 90 | | | | 90 | 338 | 329 | 66 | 308 | 90 | 7.5 | 38.75 |
| 91 | | | | 91 | 360 | 330 | 218 | 308 | 91 | 7.5 | 41.25 |
| 92 | | | | 92 | 319 | 324 | -36 | 305 | 92 | 9.5 | 30 |
| 93 | | | | 93 | 347 | 295 | 379 | 291 | 93 | 9.5 | 32.5 |
| 94 | | | | 94 | 315 | 263 | 379 | 275 | 94 | 9.5 | 35 |
| 95 | | | | 95 | 366 | 313 | 386 | 300 | 95 | 9.5 | 37.5 |
| 96 | | | | 96 | 344 | 278 | 481 | 283 | 96 | 9.5 | 40 |
| 97 | | | | 97 | 322 | 296 | 262 | 287 | 97 | 11.5 | 28.75 |
| 98 | | | | 98 | 368 | 295 | 532 | 291 | 98 | 11.5 | 31.25 |
| 99 | | | | 99 | 341 | 303 | 277 | 295 | 99 | 11.5 | 33.75 |
| 100 | | | | 100 | 525 | 296 | 1,667 | 292 | 100 | 11.5 | 36.25 |
| QC | | | | QC | 486 | 287 | 1,449 | 287 | QC | 11.5 | 36.25 |
| 101 | | | | 101 | 305 | 276 | 211 | 282 | 101 | 11.5 | 38.75 |
| 102 | | | | 102 | 359 | 288 | 517 | 288 | 102 | 11.5 | 41.25 |
| 103 | | | | 103 | 338 | 278 | 437 | 283 | 103 | 2.5 | 42.5 |
| 104 | | | | 104 | 302 | 296 | 44 | 292 | 104 | 2.5 | 45 |
| 105 | | | | 105 | 346 | 310 | 262 | 299 | 105 | 2.5 | 47.5 |
| 106 | | | | 106 | 332 | 325 | 51 | 306 | 106 | 2.5 | 50 |
| 107 | | | | 107 | 343 | 305 | 277 | 296 | 107 | 4.5 | 43.75 |
| 108 | | | | 108 | 331 | 312 | 138 | 300 | 108 | 4.5 | 46.25 |
| 109 | | | | 109 | 370 | 344 | 189 | 315 | 109 | 4.5 | 48.75 |
| 110 | | | | 110 | 353 | 294 | 430 | 291 | 110 | 4.5 | 51.25 |
| 111 | | | | 111 | 332 | 308 | 175 | 298 | 111 | 6.5 | 42.5 |
| 112 | | | | 112 | 311 | 314 | -22 | 301 | 112 | 6.5 | 45 |
| 113 | | | | 113 | 339 | 319 | 146 | 303 | 113 | 6.5 | 47.5 |
| 114 | | | | 114 | 341 | 319 | 160 | 303 | 114 | 6.5 | 50 |
| 115 | | | | 115 | 355 | 322 | 240 | 304 | 115 | 7.5 | 43.75 |
| 116 | | | | 116 | 356 | 321 | 255 | 304 | 116 | 7.5 | 46.25 |
| 117 | | | | 117 | 345 | 313 | 233 | 300 | 117 | 7.5 | 48.75 |
| 118 | | | | 118 | 336 | 292 | 320 | 290 | 118 | 9.5 | 51.25 |
| 119 | | | | 119 | 350 | 299 | 371 | 293 | 119 | 9.5 | 42.5 |
| 120 | | | | 120 | 296 | 263 | 240 | 275 | 120 | 9.5 | 45 |
| QC | | | | QC | 319 | 280 | 284 | 284 | QC | 9.5 | 45 |



UVAP Radiological Survey Form

| | | | | | | | | | | | |
|--|--|------------------------------------|------------------------------|-----------------------------|---|----------------------------|------------------------|----------------------|----------------------|--------------------------|--------------------------------|
| Location: Nuclear Reactor Inside | | RWPIWP | Survey #: UVA-FS-055C | | Survey Type: Final Status Survey | | Page 4 of 14 | | | | |
| Comments: | | Surveyed By: Alice Thompson | Date: 07/21/03 | Instrument: Tennelec | Serial #: 64052 | Cal. Due: 4/16/2004 | Probe Area: n/a | Serial #: n/a | Cal. Due: n/a | β Eff.: n/a | Max β Bkg Lc: 319 |
| Final Status Survey of Room 131 Reactor | | Jason Strand | | M-2221 | 172051 | 4/2/2004 | 43-68 | 126 | 116718 | 4/2/2004 | 0.109 |
| Containment Class 2 upper walls and ceiling. | | Brad Myers | | M-2221 | 157031 | 3/17/2004 | 44-10 | n/a | 155202 | 3/17/2004 | n/a |
| Survey Unit 34 | | Reviewed By: Frank Myers | | Date: 07/22/03 | | | | | | | |
| Final Status Survey Addendum 004 | | | | | | | | | | | |

Key: = Smear xxx to xxx = Direct Frisk = air sample = beta dose rate in mRad/hr --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | Static Count β | | | | Coordinates | | | | |
|--------|-----------|---------|------------------------|----------------------|-----|---------------|-----|-------------|-----|-----------|--------|-------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded | | Lc | No. | Elevation | Linear | |
| | α | β | α | β | | CPM | Net | | | | | CPM |
| 121 | See | | | | 121 | 351 | 307 | 320 | 297 | 121 | 9.5 | 47.5 |
| 122 | Attached | | | | 122 | 383 | 299 | 612 | 293 | 122 | 9.5 | 50 |
| 123 | Report | | | | 123 | 314 | 276 | 277 | 282 | 123 | 1.5 | 43.75 |
| 124 | | | | | 124 | 334 | 333 | 7 | 310 | 124 | 11.5 | 46.25 |
| 125 | | | | | 125 | 335 | 303 | 233 | 295 | 125 | 11.5 | 48.75 |
| 126 | | | | | 126 | 339 | 306 | 240 | 297 | 126 | 11.5 | 51.25 |
| 127 | | | | | 127 | 424 | 311 | 823 | 299 | 127 | 3 | 4.5 |
| 128 | | | | | 128 | 438 | 272 | 1,209 | 280 | 128 | 3 | 8.5 |
| 129 | | | | | 129 | 424 | 309 | 837 | 298 | 129 | 3 | 12.5 |
| 130 | | | | | 130 | 443 | 309 | 976 | 298 | 130 | 6 | 2.5 |
| 131 | | | | | 131 | 444 | 318 | 917 | 303 | 131 | 6 | 6.5 |
| 132 | | | | | 132 | 434 | 301 | 968 | 294 | 132 | 6 | 10.5 |
| 133 | | | | | 133 | 396 | 303 | 677 | 295 | 133 | 6 | 14.5 |
| 134 | | | | | 134 | 481 | 334 | 1,070 | 310 | 134 | 9 | 0.5 |
| 135 | | | | | 135 | 477 | 331 | 1,063 | 309 | 135 | 9 | 4.5 |
| 136 | | | | | 136 | 439 | 320 | 866 | 303 | 136 | 9 | 8.5 |
| 137 | | | | | 137 | 467 | 341 | 917 | 313 | 137 | 9 | 12.5 |
| 138 | | | | | 138 | 432 | 307 | 910 | 297 | 138 | 12 | 2.5 |
| 139 | | | | | 139 | 438 | 342 | 699 | 314 | 139 | 12 | 6.5 |
| 140 | | | | | 140 | 439 | 314 | 910 | 301 | 140 | 12 | 10.5 |
| QC | | | | | QC | 417 | 288 | 939 | 288 | QC | 12 | 10.5 |
| 141 | | | | | 141 | 483 | 353 | 947 | 319 | 141 | 12 | 14.5 |
| 142 | | | | | 142 | 488 | 325 | 1,187 | 306 | 142 | 15 | 4.5 |
| 143 | | | | | 143 | 428 | 293 | 983 | 290 | 143 | 15 | 8.5 |
| 144 | | | | | 144 | 441 | 328 | 823 | 307 | 144 | 15 | 12.5 |
| QC | | | | | QC | 446 | 319 | 925 | 303 | QC | 15 | 12.5 |

Reactor Containment Wall 1 meter grid

| | | | | | | | | | | | | | |
|---|---|---------|---|---------|---|---------|---|---------|---|---------|----|---------|----|
| 7 | | 310-440 | | 300-400 | | 300-370 | | 300-400 | | 300-400 | | 300-400 | |
| | ⓫ | | | ⓫ | | ⓫ | | ⓫ | | ⓫ | | ⓫ | |
| | | *13400- | | *13100- | | *13100- | | *13500- | | *13600- | | *13600- | |
| 6 | | 14600 | | 14000 | | 13800 | | 14300 | | 14300 | | 14400 | |
| 5 | | | | | | | | | | | | | |
| | | 340-430 | | 300-400 | | 290-380 | | 300-400 | | 290-370 | | 290-360 | |
| | | ⓫ | | ⓫ | | ⓫ | | ⓫ | | ⓫ | | ⓫ | |
| | | *13400- | | *12800- | | *12600- | | *13200- | | *13600- | | *13700- | |
| 4 | | 15500 | | 13700 | | 13900 | | 14100 | | 14200 | | 14400 | |
| 3 | | | | | | | | | | | | | |
| | | 350-420 | | 275-360 | | 320-420 | | 270-360 | | 300-400 | | 290-370 | |
| | | ⓫ | | ⓫ | | ⓫ | | ⓫ | | ⓫ | | ⓫ | |
| | | *13200- | | *13100- | | *13100- | | *13500- | | *12600- | | *13600- | |
| 2 | | 14600 | | 14000 | | 14300 | | 14500 | | 13500 | | 14300 | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| | | | | | | | | | | | | | 13 |
| | | | | | | | | | | | | | 14 |

Survey # UVA-FS-055

Meter # L2221 172051 L2221 * 157031

Probe # 43-68 116718 44-10 * 155202

Date 7-15-03

Beta and Gamma Scans

Readings in CPM

O denotes smear and static count locations.

Reactor Containment Wall 1 meter grid

| | | | | | | | | | | | | | | |
|------|------|---------|------|---------|------|---------|------|---------|------|---------|---------|----|----|----|
| 11.2 | | (65) | | (66) | | (67) | | (68) | | (69) | | | | |
| | | 300-400 | | 290-330 | | 300-400 | | 230-320 | | 300-400 | | | | |
| 11 | | *12300- | | *12000- | | *12900- | | *12700- | | *12500- | | | | |
| | | 12700 | | 12600 | | 13400 | | 13300 | | 13200 | | | | |
| 10 | | 290-360 | | 300-400 | | 290-360 | | 300-400 | | 250-330 | 250-330 | | | |
| | (59) | | (60) | | (61) | | (62) | | (63) | (64) | | | | |
| 9 | | *13300- | | *12500- | | *12400- | | *12800- | | *13000- | *12500- | | | |
| | | 13800 | | 12800 | | 12700 | | 13400 | | 13600 | 12700 | | | |
| 8 | | 350-420 | | 290-360 | | 300-400 | | 280-340 | | 290-370 | | | | |
| | | (54) | | (55) | | (56) | | (57) | | (58) | | | | |
| 7 | | *13700- | | *13400- | | *13700- | | *13200- | | *13800- | | | | |
| | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
| | | 14300 | | 14000 | | 14200 | | 13500 | | 14200 | | | | |

Survey # UVA-FS-055

Meter # L2221 172051 L2221 * 157031

Probe # 43-68 116718 44-10 * 155202

Date 7-15-03

Beta and Gamma Scans

Readings in CPM

O denotes smear and static count locations.

Reactor Containment Wall 1 meter grid

| | | | | | | | | | | | | | | | | | | |
|---|---------|------|---------|---------|------|---------|----|------|---------|---------|------|---------|---------|---------|---------|--|---------|---------|
| 7 | | (81) | 300-400 | | (82) | 300-360 | | (83) | 300-400 | | (84) | 300-360 | | (85) | 290-350 | | | |
| 6 | | | *13500- | | | *13200- | | | *13100- | | | *13400- | | *13300- | | | | |
| | | | 14100 | | | 14000 | | | 13700 | | | 13800 | | 13600 | | | | |
| 5 | 300-360 | | | 300-360 | | 300-360 | | | 300-400 | | | 290-350 | | | | | 300-400 | |
| 4 | (75) | | | (76) | | (77) | | | (78) | | | (79) | | | | | (80) | |
| | *13400- | | | *13600- | | *13300- | | | *12600- | | | *13700- | | | | | *13700- | |
| | 13800 | | | 14000 | | 13800 | | | 13500 | | | 14200 | | | | | 14100 | |
| 3 | | (70) | 300-370 | | (71) | 300-400 | | | (72) | 300-370 | | (73) | 300-400 | | | | (74) | 280-330 |
| | | | *12700- | | | *13000- | | | *13000- | | | *11300- | | | | | *12700- | |
| 2 | | | 13400 | | | 13600 | | | 13400 | | | 1700 | | | | | 13300 | |
| | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | | | | |

Survey # UVA-FS-055

Meter # L2221 172051 L2221 * 157031

Probe # 43-68 116718 44-10 * 155202

Date 7-15-03

Beta and Gamma Scans

Readings in CPM

O denotes smear and static count locations.

Reactor Containment Wall 1 meter grid

| | | | | | | | | | | | | | | |
|---|----|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----|------------------|----|----|
| 7 | | 300-400 (48) | | 300-400 (49) | | 290-340 (50) | | 300-400 (51) | | 300-380 (52) | | 290-350 (53) | | |
| 6 | | *13700- 14200 | | *13500- 14300 | | *12600- 13300 | | *13300- 14000 | | *13100- 13600 | | *13800- 14500 | | |
| 5 | | | | | | | | | | | | | | |
| 4 | | | 290-360 (43) | | 290-320 (44) | | 290-360 (45) | | 290-370 (46) | | | 260-320 (47) | | |
| 3 | | | *13800- 14300 | | *12500- 13100 | | *12500- 13700 | | *13500- 13800 | | | *13100- 13600 | | |
| 2 | | | | | | | | | | | | | | |
| | 15 | 280-370 (37) | | 250-320 (38) | | 250-320 (39) | | 200-300 (40) | | 290-370 (41) | | 250-340 (42) | | |
| | | *13600- 14100 | | *13500- 14200 | | *11800- 12600 | | *10400- 11000 | | *12500- 13800 | | *12500- 13600 | | |
| | | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |

Survey # UVA-FS-055

Meter # L2221 172051 L2221 * 157031

Probe # 43-68 116718 44-10 * 155202

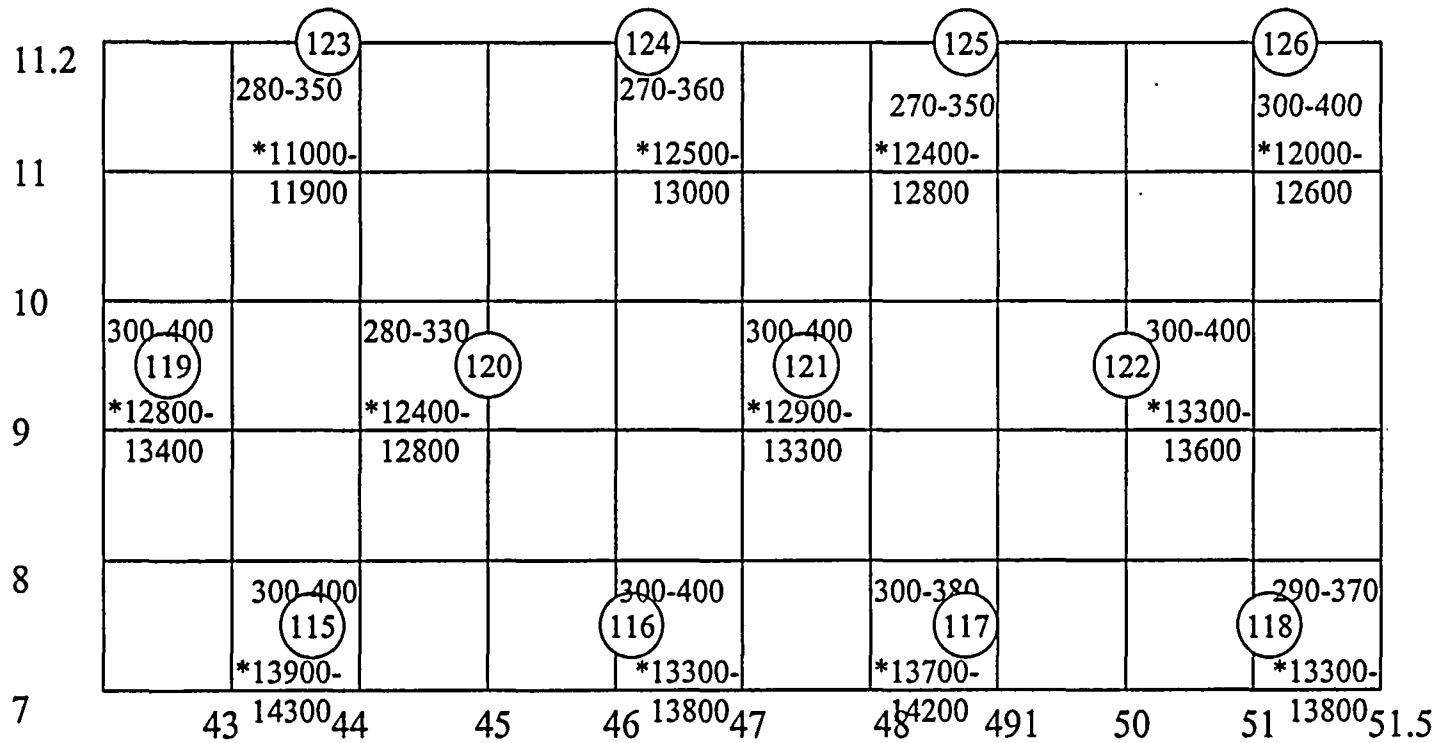
Date 7-16-03

Beta and Gamma Scans

Readings in CPM

O denotes smear and static count locations.

Reactor Containment Wall 1 meter grid



Survey # UVA-FS-055

Meter # L2221 172051 L2221 * 157031

Probe # 43-68 116718 44-10 * 155202

Date 7-16-03

Beta and Gamma Scans

Readings in CPM

O denotes smear and static count locations.

Reactor Containment Wall 1 meter grid

| | | | | | | | | | |
|---|------------------|------------------|------------------|------------------|------------------|------------------|------|------------------|------------------|
| 7 | 290-350 ⓪111 | | 290-350 ⓪112 | | 290-350 ⓪113 | | ⓪114 | 290-360 | |
| 6 | *13200- 13800 | | *13900- 14200 | | *14400- 14600 | | | 13300- 13800 | |
| 5 | | 300-400 | | 280-350 | | 300-400 | | | 300-400 |
| 4 | | ⓪107 | | ⓪108 | | ⓪109 | | | ⓪110 |
| | | *13000- 13600 | | *13800- 14400 | | *13300- 14000 | | | *13900- 14300 |
| 3 | 290-350 ⓪103 | | 270-330 ⓪104 | | 300-380 ⓪105 | | | 300-380 ⓪106 | |
| 2 | *13800- 14300 | | *13600- 14000 | | *13600- 14000 | | | *13400- 13900 | |
| | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 |
| | | | | | | | | | 51.5 |

Survey # UVA-FS-055

Meter # L2221 172051 L2221 * 157031

Probe # 43-68 116718 44-10 * 155202

Date 7-1703

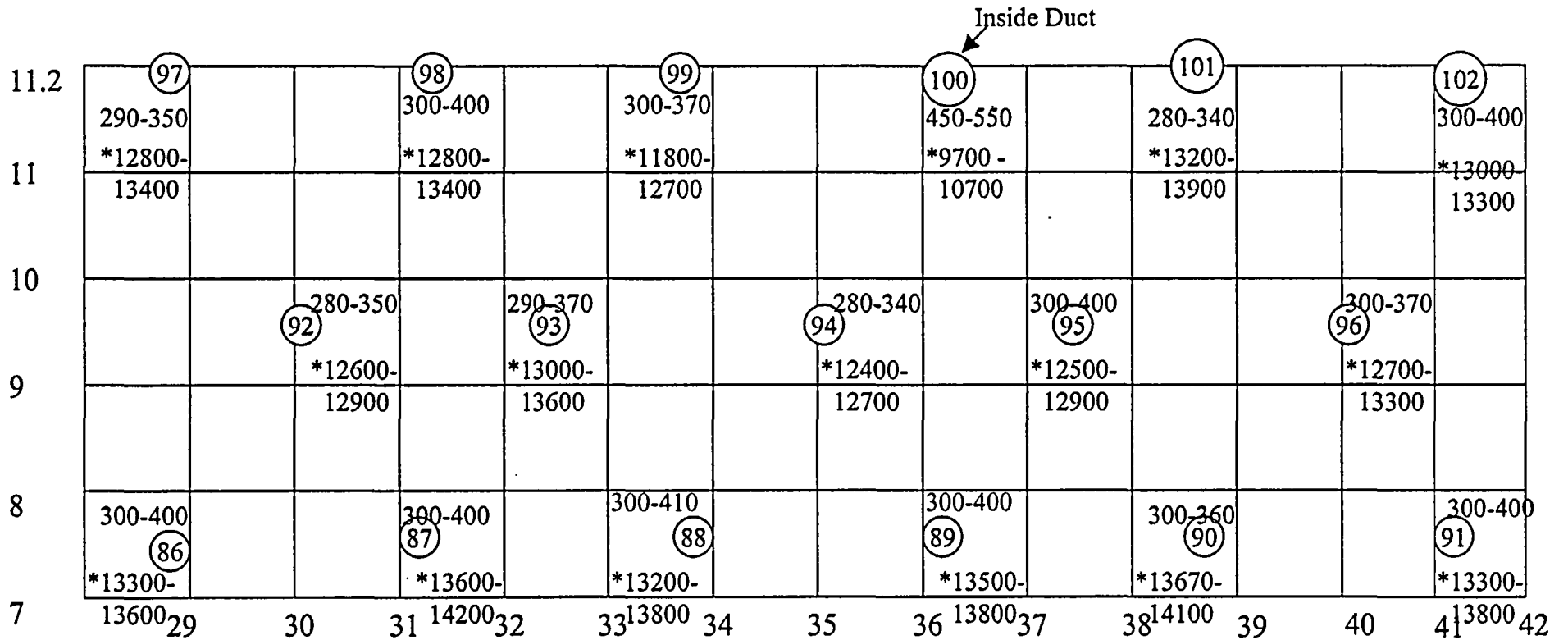
Beta and Gamma Scans

Readings in CPM

O denotes smear and static count locations.



Reactor Containment Wall 1 meter grid



Survey # UVA-FS-055

Meter # L2221 172051 L2221 * 157031.

Probe # 43-68 116718 44-10. * 155202

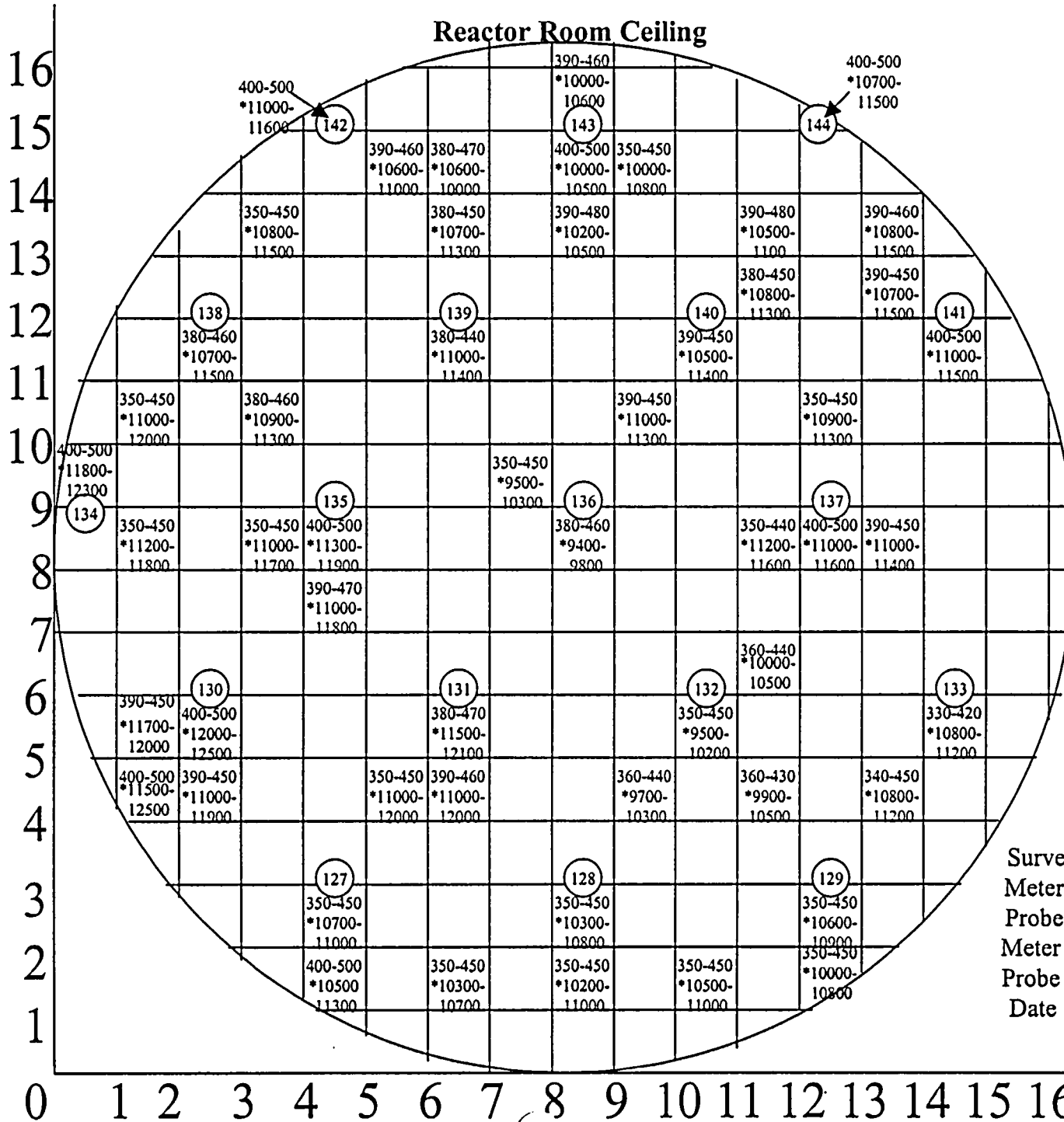
Date 7-16-03

Beta and Gamma Scans

Readings in CPM

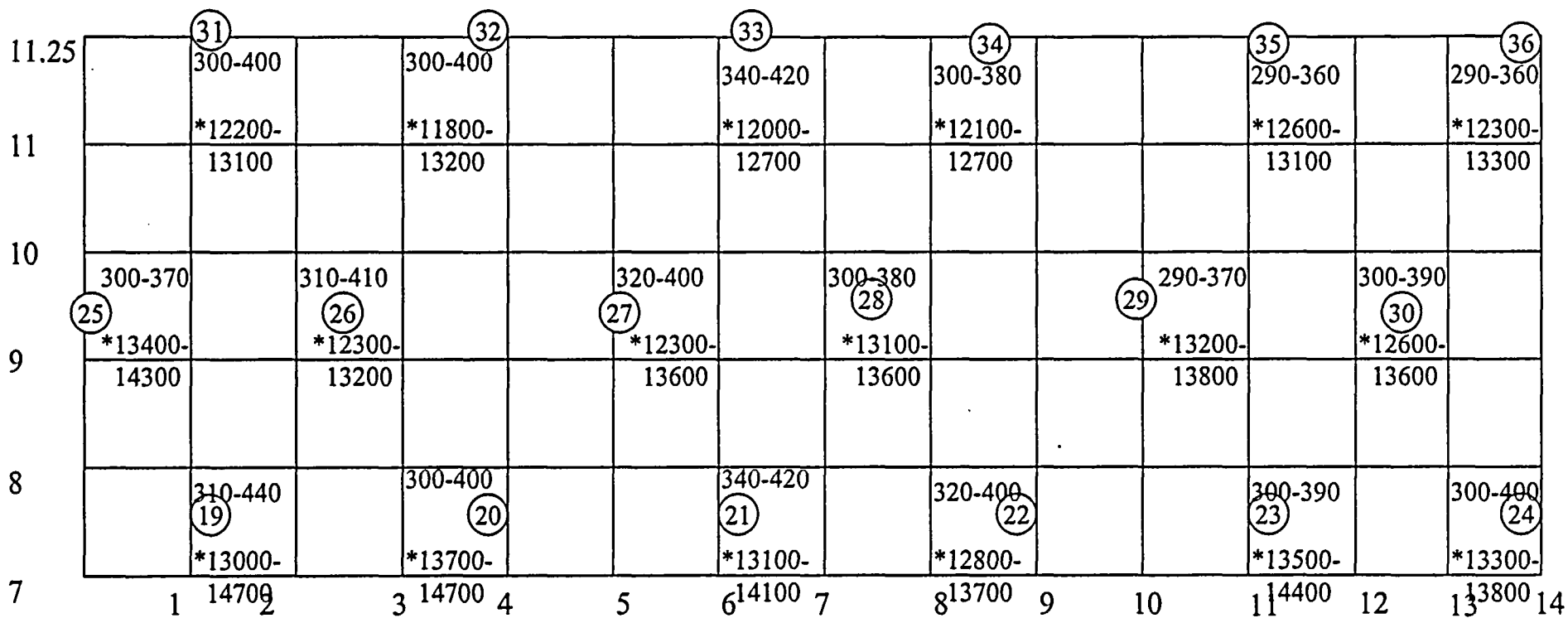
O denotes smear and static count locations.

Reactor Room Ceiling



Survey # UVA-FS-055
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-17-03

Reactor Containment Wall 1 meter grid



Survey # UVA-FS-055

Meter # L2221 172051 L2221 * 157031

Probe # 43-68 116718 44-10 * 155202

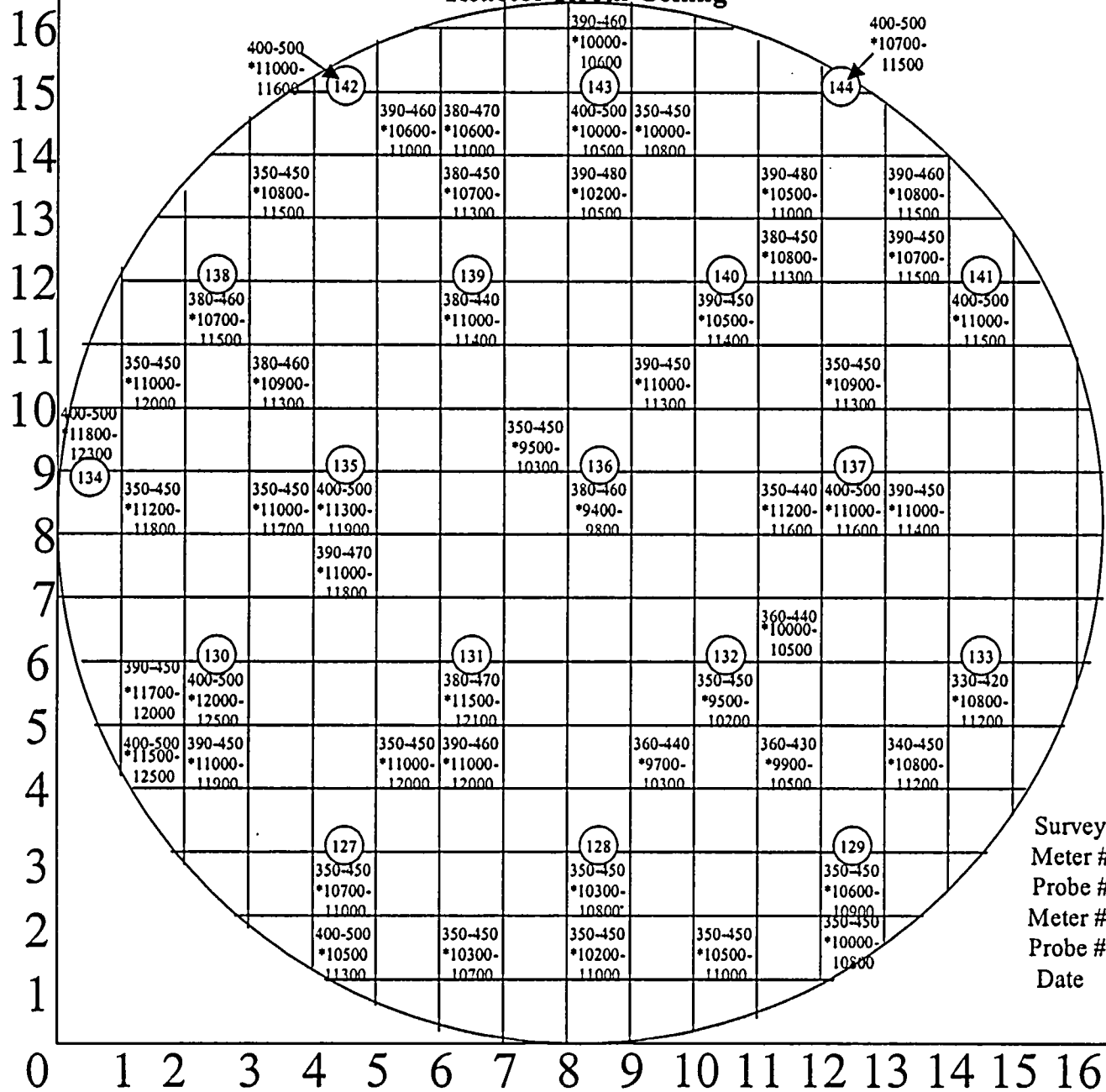
Date 7-15-03

Beta and Gamma Scans

Readings in CPM

O denotes smear and static count locations.

Reactor Room Ceiling



Survey # UVA-FS-055
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-17-03



UVAP Radiological Survey Form

| | | | | | | | | | | | | | | |
|---|--|---|------------------------------|----------------------------|------------------------------|---------------------------------|----------------------------------|------------------------------|-----------------------|-------------------------|-----------------------|-----------------------|--------------------------------|--------------------------------|
| Location: Reactor Room | | RWP/WP | | Survey #: UVA-FS-056 | | | Survey Type: Final Status Survey | | Page 1 of 5 | | | | | |
| Comments: Beta Scan of Reactor Room Soil samples of "M" core and "B" core Final Status survey unit 68 Final Status addendum 007 | Surveyed By: Jason Strand Brad Myers Reviewed By: Frank Myers | Date: 07/08/03 07/08/03 Date: 07/21/03 | Instrument: M-2221 | Serial #: 172051 | Cal. Due: 4/2/2004 | Probe Area: 43-68 126 | Serial #: 116718 | Cal. Due: 4/2/2004 | α Eff.: n/a | β Eff.: 0.107 | α Bkg.: n/a | β Bkg.: n/a | α L_a: n/a | β L_a: n/a |

Key: = Smear xxx to xxx = Direct Fns; = air sample; B = beta dose rate in mRad/h; --X--X-- = Boundary; SOP = Step Off Pad; x/y = contact/12" dose rate; # = General dose rate

| Smears | | | | Gamma Scans | | | | Location | |
|--------|-----------|---|------------------------|-------------|-----|---------|-----------|----------|----------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Audible | | No. | |
| | α | β | α | β | | Yes/No | Pass/Fail | | |
| 1 | | | | | 1 | 750-900 | no | pass | "M" core |
| 2 | | | | | 2 | 650-850 | no | pass | "B" core |
| | | | | | | | | | |
| | | | | | | | | | |
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UVAP Radiological Survey Form

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|--|--|--------------|----------|------------|----------|------------------------------|------------|----------|---|-----------|--------|-------------|--------|------------------|------------------|
| Location: Reactor Room | | | RWP/WP | | | Survey #: UVA-FS-056A | | | Survey Type: Final Status Survey | | | Page 2 of 5 | | | |
| Comments: | | Surveyed By: | Date: | Instrument | Serial # | Cal. Due | Probe Area | Serial # | Cal. Due | α Eff. | β Eff. | α Bkg. | β Bkg. | α L _s | β L _s |
| Gamma Scan of Reactor Room Soil samples of "M" core and "B" core | | Jason Strand | 07/08/03 | M-2221 | 157031 | 3/17/2004 | 44-10 | n/a | 155202 | 3/17/2003 | n/a | n/a | n/a | n/a | n/a |
| Final Status survey unit 68 | | Brad Myers | 07/08/03 | | | | | | | | | | | | |
| Final Status addendum 007 | | Reviewed By: | Date: | | | | | | | | | | | | |
| | | Frank Myers | 07/21/03 | | | | | | | | | | | | |

Key: ○ = Smear xxx to xxx = Direct Fnst. Δ = air sample B = beta dose rate in mRad/h --X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | | Gamma Scans | | | | Location | | |
|--------|-----------|---|------------------------|---|-------------|-------------|-----------|---------|-----------|-----|----------|
| No. | Gross CPM | | DPM/100cm ² | | No. | | | Audible | | No. | |
| | α | β | α | β | | Yes/No | Pass/Fail | Yes/No | Pass/Fail | | |
| | | | | | 1 | 26000-29000 | | no | Pass | | "M" core |
| | | | | | 2 | 20500-29500 | | no | Pass | | "B" core |
| | | | | | | | | | | | |
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**UVAP
Radiological Survey Form**

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|---|--|--|--|----------------------------|-------------------------------|---------------------------------|----------------------------|-------------------------------|------------------------------|----------------------------------|
| Location: Nuclear Reactor Inside | RWP/WP | Survey # UVA-FS-056B | Survey Type: Final Status Survey | Page 3 of 5 | | | | | | |
| Comments: Gamma Scans Reactor room soil sampling Core "M" and core "B" Final Status Survey Unit 68 Final Status Survey Addendum 007 | Surveyed By: Jason Strand Brad Myers Frank Myers | Date: 07/17/03 07/07/03 07/22/03 | Instrument: M-12 | Serial #: 167173 | Cal. Due: 3/20/2004 | Probe Area: 44-9 15.5 | Serial #: 151868 | Cal. Due: 3/20/2004 | β Eff. 0.059 | Max β Bkg Lc 253 |

Key: \circ = Smear xxx to xxx = Direct Frisk Δ = air sample B = beta dose rate in mRad/h --X-X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | | Static Count β | | | | Coordinates | | | | |
|--------|-----------|---------|------------------------|---------|----------------------|------------|-----|-------|-------------|----------|--------------|------------|---------------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Sample/Bkg | | | No. | Sample # | Location | | |
| | α | β | α | β | | CPM | Net | Lc | | | | | |
| | | | | | 1 | 106 | 53 | -109 | 228 | 1 | UVA-SLFS-072 | N 23 E 4.5 | 6 inch sample |
| | | | | | 2 | 88 | 53 | 3.827 | 228 | 2 | UVA-SLFS-073 | N 25.5 E 3 | 6 inch sample |
| | | | | | 3 | 89 | 53 | 3.937 | 228 | 3 | UVA-SLFS-074 | N 20.5 E 6 | 6 inch sample |
| | | | | | 4 | 90 | 53 | 4.046 | 228 | 4 | UVA-SLFS-075 | N 20.5 E 3 | 6 inch sample |
| | | | | | 5 | 94 | 53 | 4.483 | 228 | 5 | UVA-SLFS-076 | N 23 E 1.5 | 6 inch sample |
| | | | | | 6 | 131 | 61 | 7.654 | 245 | 6 | UVA-SLFS-077 | N 0.5 E 12 | 6 inch sample |
| | | | | | 7 | 102 | 61 | 4.483 | 245 | 7 | UVA-SLFS-078 | N 0.5 E 15 | 6 inch sample |
| | | | | | 8 | 104 | 61 | 4.702 | 245 | 8 | UVA-SLFS-079 | N 3 E 13.5 | 6 inch sample |
| | | | | | 9 | 95 | 65 | 3.280 | 253 | 9 | UVA-SLFS-080 | N 3 E 10.5 | 6 inch sample |
| | | | | | 10 | 102 | 65 | 4.046 | 253 | 10 | UVA-SLFS-081 | N 5.5 E 12 | 6 inch sample |
| | | | | | 11 | 107 | 65 | 4.593 | 253 | 11 | UVA-SLFS-082 | N 8 E 13.5 | 6 inch sample |
| | | | | | 12 | 105 | 62 | 4.702 | 247 | 12 | UVA-SLFS-083 | N 8 E 16.5 | 6 inch sample |
| | | | | | 13 | 94 | 62 | 3.499 | 247 | 13 | UVA-SLFS-084 | N 5.5 E 15 | 6 inch sample |
| | | | | | 14 | 129 | 62 | 7.326 | 247 | 14 | UVA-SLFS-085 | N 3 E 16.5 | 6 inch sample |
| | | | | | 15 | 96 | 62 | 3.718 | 247 | 15 | UVA-SLFS-086 | N 0.5 E 18 | 6 inch sample |
| | | | | | 16 | 93 | 62 | 3.390 | 247 | 16 | UVA-SLFS-087 | N 4 E 18.5 | 6 inch sample |
| | | | | | 17 | 88 | 62 | 2.843 | 247 | 17 | UVA-SLFS-088 | N 5.5 E 18 | 6 inch sample |
| | | | | | qc | 131 | 62 | 7.545 | 247 | qc | UVA-SLFS-089 | N 5.5 E 18 | 6 inch sample |



UVAP

Radiological Survey Form

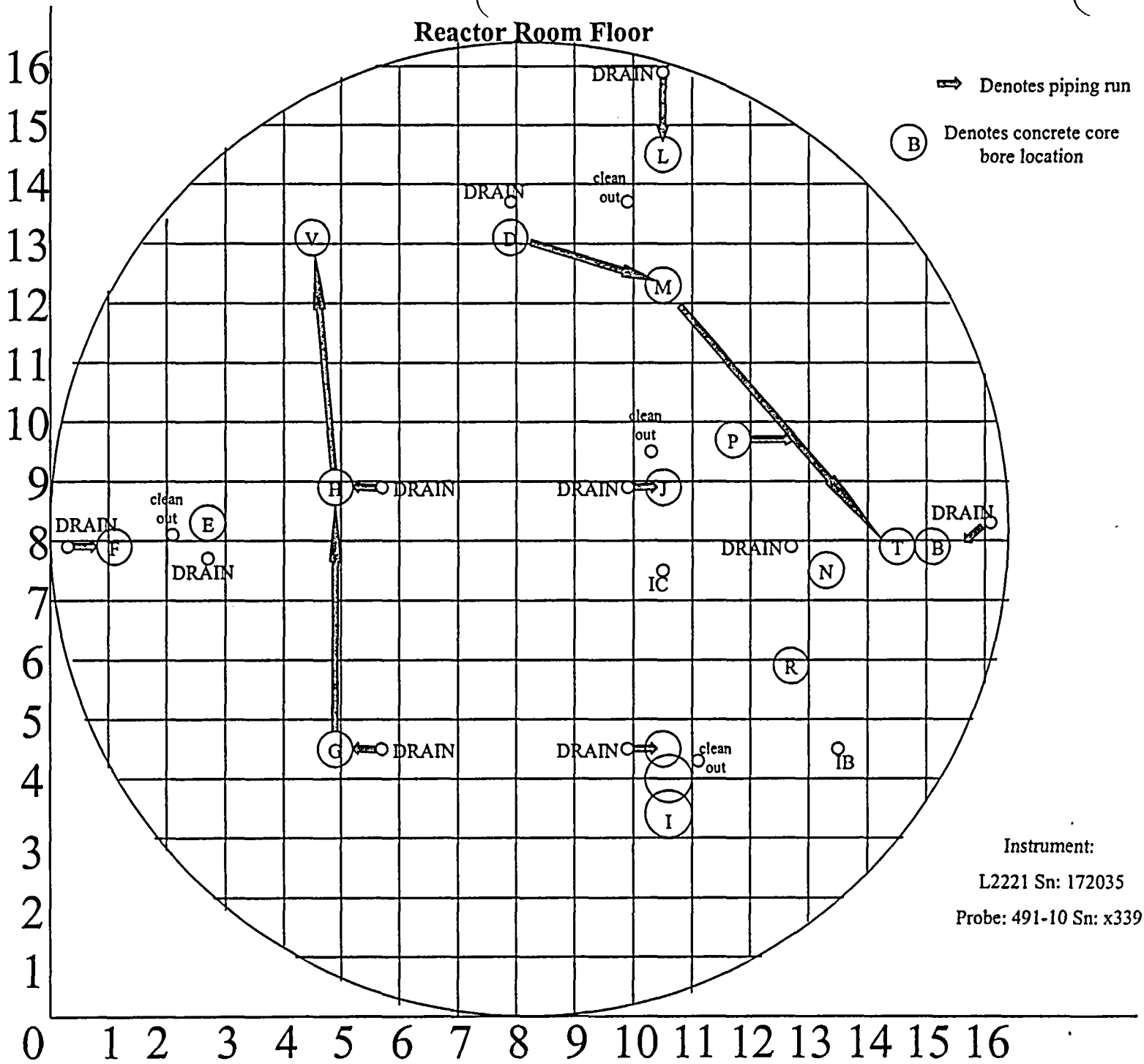
| | | | | | | | | | | | | | | | |
|--|--|--------------|----------|------------|-------------|-----------|------------|---------------------|----------|---------------|--------------|---------------|--------------|-------------------------|------------------------|
| Location: | | RWPI/WP | | | Survey # | | | Survey Type: | | | | Page 4 of 5 | | | |
| Reactor Room | | | | | UVA-FS-056C | | | Final Status Survey | | | | | | | |
| Comments: | | Surveyed By: | Date: | Instrument | Serial # | Cal. Due | Probe Area | Serial # | Cal. Due | α Eff. | β Eff. | α Bkg. | β Bkg. | α L _e | β L _e |
| Gamma Scan of Reactor Room Soil samples of "M" core and "B" core | | Jason Strand | 07/08/03 | M-2221 | 157031 | 3/17/2004 | 44-10 | n/a | 155202 | 3/17/2003 | n/a | n/a | n/a | n/a | n/a |
| Final Status survey unit 68 | | Brad Myers | 07/08/03 | | | | | | | | | | | | |
| Final Status addendum 007 | | Reviewed By: | Date: | | | | | | | | | | | | |
| | | Frank Myers | 07/21/03 | | | | | | | | | | | | |

Key: = Smear xxx to xxx = Direct Frisk = air sample B = beta dose rate in mRad/h --X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate ## = General dose rate

| Smears | | | | | Gamma Scans | | | | Location/Sample ID | | | |
|--------|-----------|---------|------------------------|---------|-------------|-------------|-----------|------|--------------------|--------|-------|--------------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Yes/No | Audible | | No. | | | |
| | α | β | α | β | | | Pass/Fail | | | | | |
| | | | | | 1 | 29991-30397 | no | Pass | | N 23 | E4.5 | UVA-SLFS-072 |
| | | | | | 2 | 21431-21692 | no | Pass | | N 25.5 | E3 | UVA-SLFS-073 |
| | | | | | 3 | 26426-27259 | no | Pass | | N 20.5 | E6 | UVA-SLFS-074 |
| | | | | | 4 | 23098-23593 | no | Pass | | N 20.5 | E3 | UVA-SLFS-075 |
| | | | | | 5 | 21280-21705 | no | Pass | | N 23 | E1.5 | UVA-SLFS-076 |
| | | | | | 6 | 27596-28543 | no | Pass | | N 0.5 | E12 | UVA-SLFS-077 |
| | | | | | 7 | 19749-19999 | no | Pass | | N 0.5 | E15 | UVA-SLFS-078 |
| | | | | | 8 | 25998-26262 | no | Pass | | N 3 | E13.5 | UVA-SLFS-079 |
| | | | | | 9 | 22699-23719 | no | Pass | | N 3 | E10.5 | UVA-SLFS-080 |
| | | | | | 10 | 28501-29182 | no | Pass | | N 5.5 | E12 | UVA-SLFS-081 |
| | | | | | 11 | 23758-24688 | no | Pass | | N 8 | E13.5 | UVA-SLFS-082 |
| | | | | | 12 | 21446-21317 | no | Pass | | N 8 | E16.5 | UVA-SLFS-083 |
| | | | | | 13 | 26677-27126 | no | Pass | | N 5.5 | E15 | UVA-SLFS-084 |
| | | | | | 14 | 23279-23334 | no | Pass | | N 3 | E16.5 | UVA-SLFS-085 |
| | | | | | 15 | 21679-22840 | no | Pass | | N 0.5 | E18 | UVA-SLFS-086 |
| | | | | | 16 | 26893-26381 | no | Pass | | N 4 | E18.5 | UVA-SLFS-087 |
| | | | | | 17 | 26737-27153 | no | Pass | | N 5.5 | E18 | UVA-SLFS-088 |
| | | | | | QC | 26314-27090 | no | Pass | | N 5.5 | E18 | UVA-SLFS-089 |
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6 INCH SAMPLES

Reactor Room Floor



Instrument:
 L2221 Sn: 172035
 Probe: 491-10 Sn: x339



UVAP Radiological Survey Form

| | | | | | |
|--|----------------------------------|-----------------------|------------------------------|---|---------------------------|
| Location: Reactor Room | | RWP/WP | Survey # UVA-FS-057 | Survey Type: Final Status Survey | Page 1 of 4 |
| Comments: | Surveyed By: Jason Strand | Date: 07/17/03 | Instrument: M-2221 | Serial #: 172051 | Cal. Due: 4/2/2004 |
| Beta Scan of Demin Wall Core soil sampling | Reviewed By: Brad Myers | Date: 07/17/03 | Probe Area: 43-68 126 | Serial #: 116718 | Cal. Due: 4/2/2004 |
| Final Status survey Unit 69 | Reviewed By: Frank Myers | | Date: 07/22/03 | | |
| Final Status addendum 007 | | | | | |
| Bkg @ CPM, L, H CPM | | | | | |

Key: ○ = Smear xxx to xxx = Direct Frisk △ = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | | Gamma Scans | | | Location | |
|--------|-----------|---|------------------------|---|-------------|---------|-----------|----------|-----------------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Audible | | No. | |
| | α | β | α | β | | Yes/No | Pass/Fail | | |
| | | | | | 725-850 | no | pass | | Demin Wall core |
| | | | | | | | | | |
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UVAP

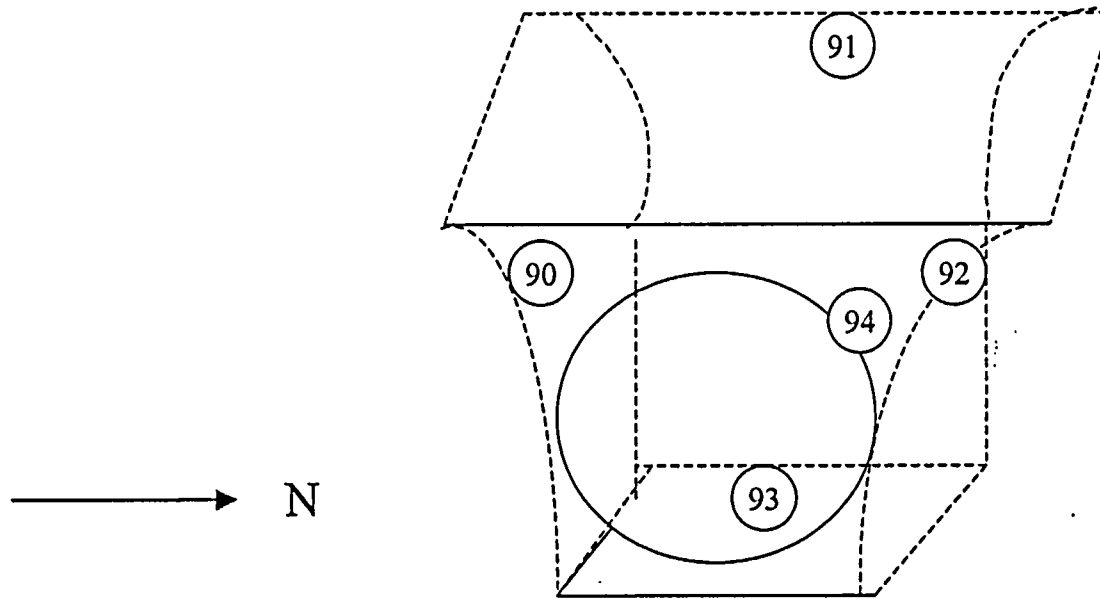
Radiological Survey Form

| | | | | |
|--|---|--|---|--|
| Location: Nuclear Reactor Inside | RWP/WP | Survey # UVA-FS-057B | Survey Type: Final Status Survey | Page 3 of 4 |
| Comments: Soil Sampling in Demin Wall Core Final Status Survey Unit 69 Final Status Survey Addendum 007 | Surveyed By: Jason Strand Date: 07/17/03 | Instrument: M-12 Serial #: 167173 Cal. Due: 3/20/2004 | Probe Area: 44-9 15.5 Serial #: 151868 Cal. Due: 3/20/2004 | β Eff. 0.059 Max β Bkg Lc 241 |
| | Reviewed By: Frank Myers Date: 07/22/03 | | | |

Key: ○ = Smear xxx to xxx = Direct Flnsk △ = air sample B = beta dose rate in mRad/h -X-X- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | | Static Count β | | | | Coordinates | | | | | |
|-----------|----------|------------------------|----------|---------|----------------------|-----|------------------------|-------|-------------|----------|--------------|------------|---------------|--|
| Gross CPM | | DPM/100cm ² | | | Sample/Bkg | | DPM/100cm ² | | No. | Sample # | | Location | | |
| No. | α | β | α | β | No. | CPM | Net | Lc | No. | | | | | |
| 1 | 108 | 59 | -109 | 241 | 1 | 108 | 59 | -109 | 241 | 1 | UVA-SLFS-090 | Demin Wall | 6 inch sample | |
| 2 | 115 | 59 | 6.124 | 241 | 2 | 115 | 59 | 6.124 | 241 | 2 | UVA-SLFS-091 | Demin Wall | 6 inch sample | |
| 3 | 97 | 59 | 4.155 | 241 | 3 | 97 | 59 | 4.155 | 241 | 3 | UVA-SLFS-092 | Demin Wall | 6 inch sample | |
| 4 | 87 | 59 | 3.062 | 241 | 4 | 87 | 59 | 3.062 | 241 | 4 | UVA-SLFS-093 | Demin Wall | 6 inch sample | |
| 5 | 92 | 59 | 3.609 | 241 | 5 | 92 | 59 | 3.609 | 241 | 5 | UVA-SLFS-094 | Demin Wall | 6 inch sample | |
| | | | | | | | | | | | | | | |
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Demin Wall Core



Survey # UVA-FS-057
Meter # L2221 172051
Prone # 43-68 116718
Meter # L2221 *157031
Probe # 44-10 *155202
Date 7-17-03

Beta Scan=725 CPM To850 CPM
*Gamma Scans = 19600CPM To 24700 CPM



**UVAP
Radiological Survey Form**

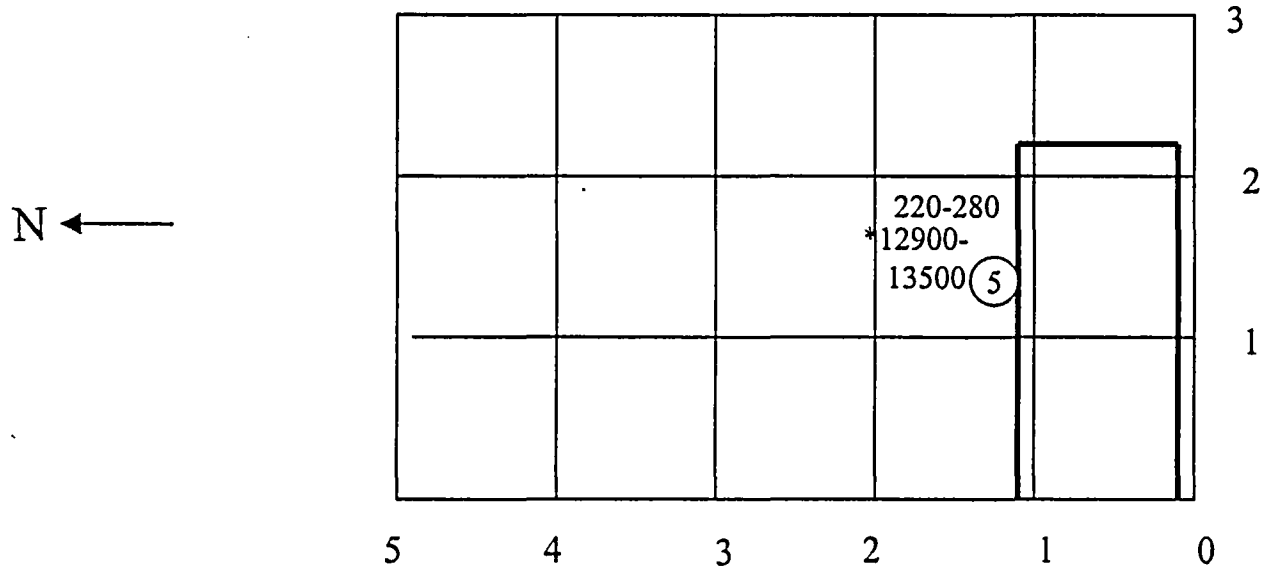
| | | | | | | | | | | | |
|--|--|---------------------------------------|-------------------------------|-------------------------------|--|------------------------------|----------------------------|------------------------|---------------------------|----------------------------|--------------------------------|
| Location: Nuclear Reactor Inside | | RWP/WP | Survey # UVA-FS-058 | | Survey Type: Final Status Survey | | Page 1 of 7 | | | | |
| Comments: Final Status Survey of Room 126 Class 3 Survey Unit 66 Final Status Survey Addendum 004 | | Surveyed By: Alice Thompson | Date: 07/21/03 | Instrument Tennelec | Serial # 64052 | Cal. Due 4/16/2004 | Probe Area n/a | Serial # n/a | Cal. Due n/a | β Eff. n/a | M α x β Bkg Lc n/a |
| | | Surveyed By: Alice Thompson | Date: 07/19/03 | Instrument M-2221 | Serial # 172051 | Cal. Due 4/2/2004 | Probe Area 43-68 | Serial # 126 | Cal. Due 116718 | β Eff. 4/2/2004 | M α x β Bkg Lc 0.107 |
| | | Reviewed By: Frank Myers | Date: 07/22/03 | Instrument M-2221 | Serial # 157031 | Cal. Due 3/17/2004 | Probe Area 44-10 | Serial # n/a | Cal. Due 155202 | β Eff. 3/17/2004 | M α x β Bkg Lc n/a |

Key: ○ = Smear xxx to xxx = Direct Fnst Δ = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate ## = General dose rate

| Smears | | | | Static Count β | | | | Coordinates | | | | | |
|--------|-----------|---|------------------------|----------------|-----|---------------|-----|------------------------|-----|-----|-------|------|-----------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded | | DPM/100cm ² | | No. | North | East | Elevation |
| | α | β | α | β | | CPM | Net | Lc | | | | | |
| 1 | See | | | | 1 | 371 | 312 | 438 | 305 | 1 | 1.2 | 5.7 | 0 |
| 2 | Attached | | | | 2 | 270 | 262 | 59 | 280 | 2 | 1.5 | 3.5 | 0 |
| 3 | Report | | | | 3 | 279 | 254 | 185 | 275 | 3 | 3.5 | 3.5 | 0 |
| 4 | | | | | 4 | 298 | 266 | 237 | 282 | 4 | 3.2 | 0.5 | 0 |
| 5 | | | | | 5 | 265 | 272 | -52 | 285 | 5 | 1.2 | 5.7 | 1.2 |
| 6 | | | | | 6 | 273 | 273 | 0 | 286 | 6 | 0 | 4.5 | 0.5 |
| 7 | | | | | 7 | 281 | 277 | 30 | 288 | 7 | 0 | 3.5 | 1.5 |
| 8 | | | | | 8 | 322 | 317 | 37 | 308 | 8 | 1.5 | 0 | 2.2 |
| 9 | | | | | 9 | 321 | 309 | 89 | 304 | 9 | 2.5 | -0.3 | 1.5 |
| 10 | | | | | 10 | 278 | 275 | 7 | 287 | 10 | 0 | 0.5 | 2.5 |
| 11 | | | | | 11 | 285 | 267 | 134 | 282 | 11 | 4.9 | 2.5 | 0.6 |
| 12 | | | | | 12 | 312 | 310 | 15 | 304 | 12 | 1.2 | 2.5 | 3 |
| 13 | | | | | 13 | 251 | 284 | -245 | 291 | 13 | 4.5 | 1.7 | 3 |
| 14 | | | | | 14 | 290 | 276 | 104 | 287 | 14 | 4.5 | 4.8 | 1 |
| 15 | | | | | 15 | 315 | 309 | 45 | 304 | 15 | 4.5 | 4.8 | 3 |
| QC | | | | | QC | 319 | 318 | 7 | 308 | QC | 4.5 | 4.8 | 3 |

Room 126 East Wall 1 meter Grid

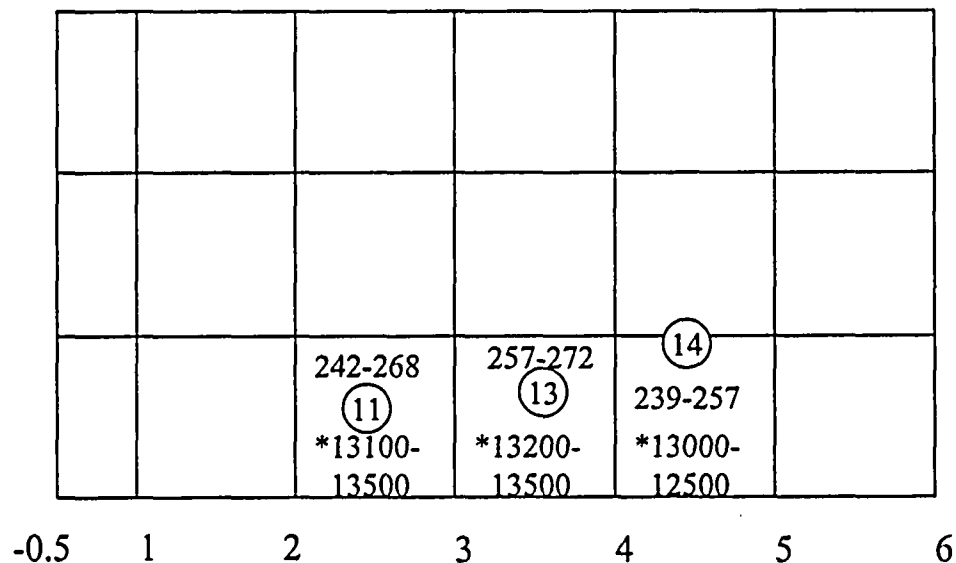
E = 6



Survey # UVA-FS-058
Meter # L2221 172051
Probe # 43-68 116178
Meter # L2221 *157031
Probe # 44-10 *155202
Date 7-19-03
Beta and Gamma Scans
Readings in CPM
O denotes smear and static
count location.

Room 126 North Wall 1 meter Grid

N = 5

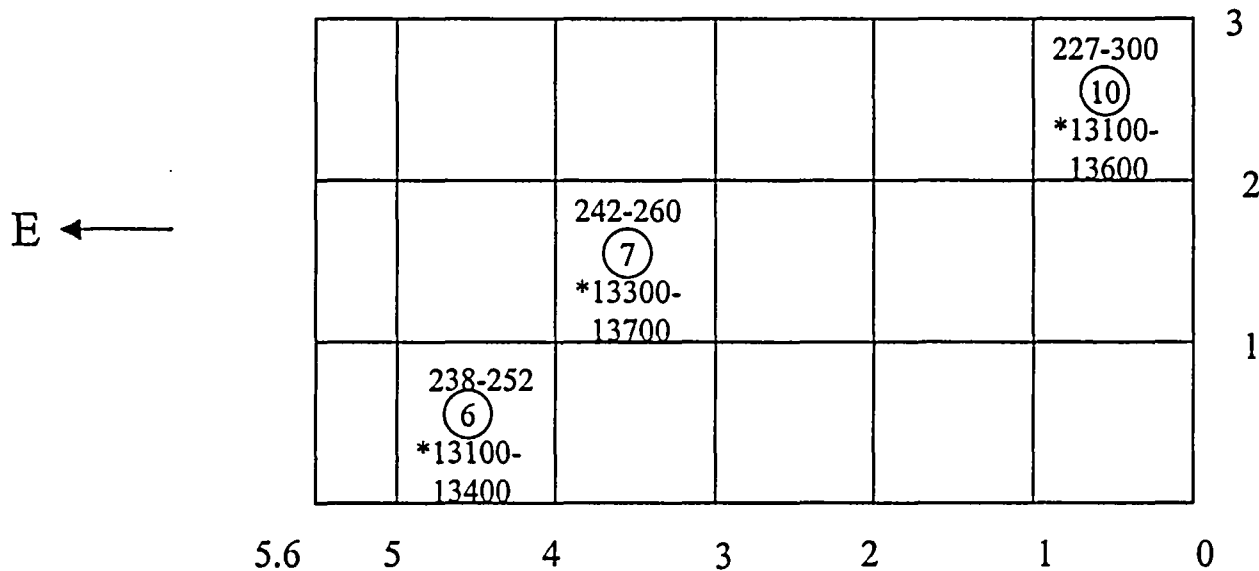


→ E

Survey # UVA-FS-058
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-19-03
 Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count
 locations.

Room 126 South Wall 1 meter Grid

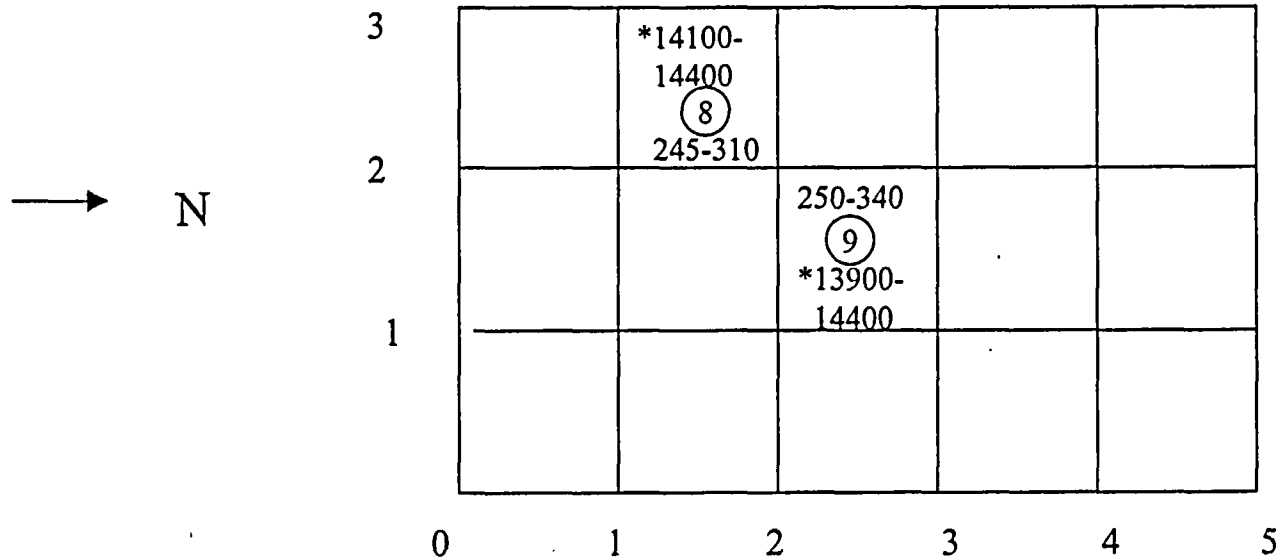
N = 0



Survey # UVA-FS-058
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-19-03
 Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static
 count locations.

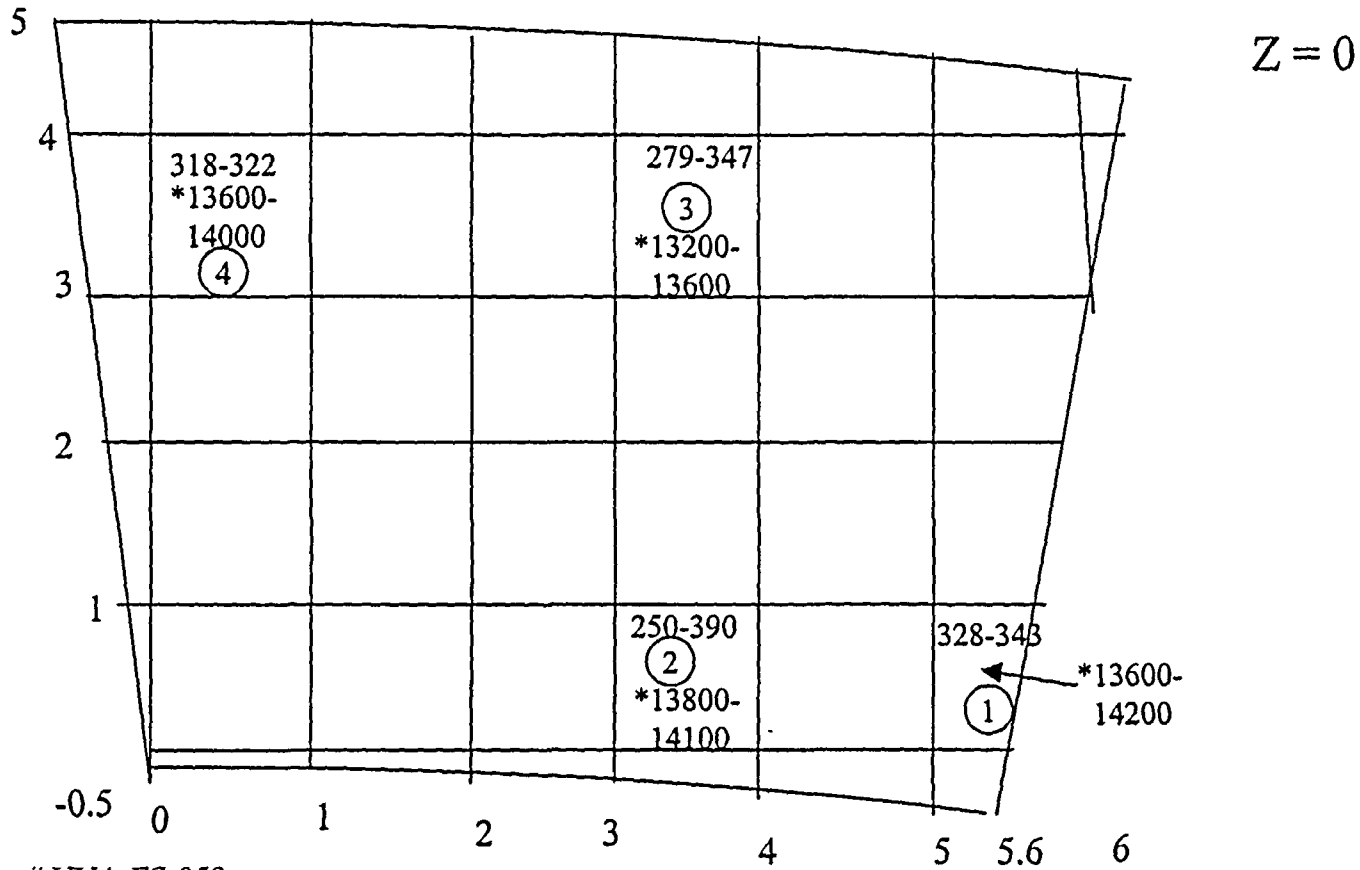
Room 126 West Wall 1 meter Grid

E = 0 to -0.5



Survey # UVA-FS-058
Meter # L2221 172051
Probe # 43-68 116718
Meter # L2221 *157031
Probe # 44-10 *155202
Date 7-19-03
Beta and Gamma Scans
Readings in CPM
O denotes smear and static
count locations.

Room 126 Floor 1 meter grid



Survey # UVA-FS-058

Meter # L2221 172051

Probe # 43-68 116718

Meter # L2221 *157031

Probe # 44-10 *155202

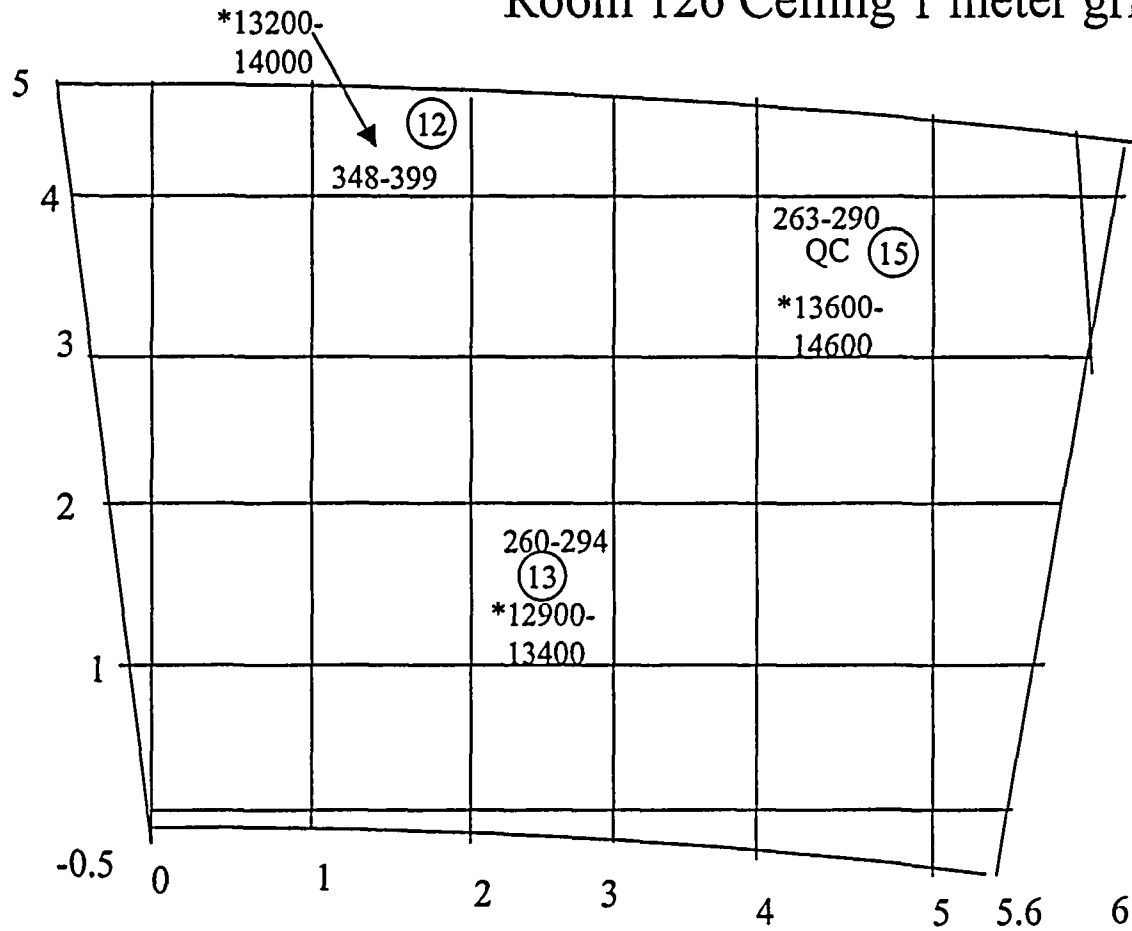
Date 7-19-03

Beta and gamma scans

Readings in CPM

O denotes smear and static count locations.

Room 126 Ceiling 1 meter grid



Survey # UVA-FS-058
Meter # L2221 172051
Probe # 43-68 116718
Meter # L2221 *157031
Probe # 44-10 *155202
Date 7-19-03
Beta and Gamma Scans
Readings in CPM
O denotes smear and static count locations.



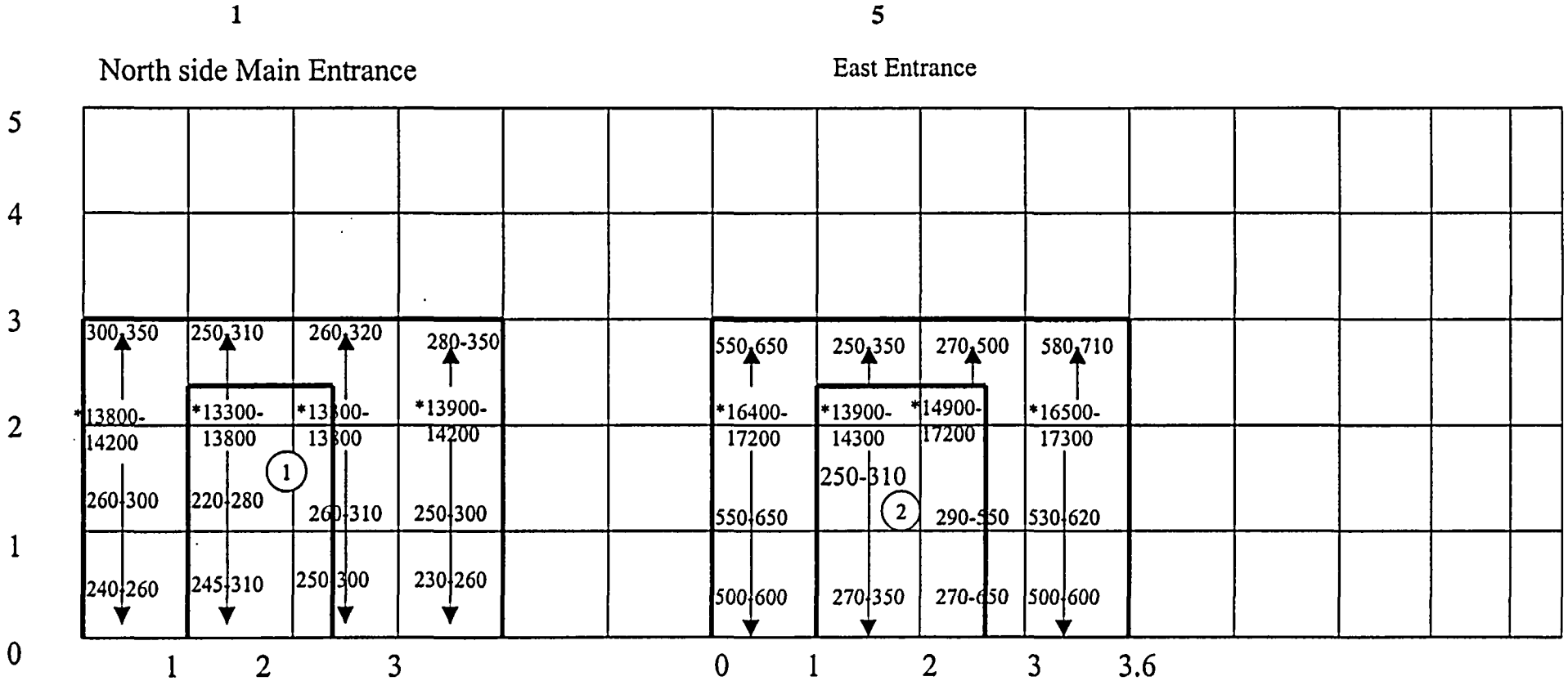
UVAP Radiological Survey Form

| | | | | |
|---|-------------------------|------------|---------------------|-------------|
| Location: | RWPI/WP | Survey # | Survey Type: | Page 1 of 7 |
| Nuclear Reactor Inside | | UVA-FS-059 | Final Status Survey | |
| Comments: | Surveyed By: Date: | Instrument | Serial # | Cal. Due |
| Final Status Survey of Building Outside Surface | Alice Thompson 07/21/03 | Tennelec | 64052 | 4/16/2004 |
| 1 meter around doors and vents | Jason Strand 07/21/03 | M-2221 | 172051 | 4/2/2004 |
| Survey Unit 67 | Brad Myers 07/18/03 | M-2221 | 157031 | 3/17/2004 |
| Final Status Survey Addendum 006 | Reviewed By: Date: | | | |
| | Frank Myers 07/23/03 | | | |

Key: = Smear xxx to xxx = Direct Fnsk = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | | Static Count β | | | | Coordinates | | | | |
|--------|-----------|---|------------------------|---|----------------|---------------|------|------------------------|-------------|-----|-------|------|-----------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded | | DPM/100cm ² | | No. | North | East | Elevation |
| | α | β | α | β | | CPM | Net | Lc | | | | | |
| 1 | See | | | | 1 | 296 | 297 | -7 | 298 | 1 | | | |
| 2 | Attached | | | | 2 | 273 | 285 | -89 | 292 | 2 | | | |
| 3 | Report | | | | 3 | 250 | 239 | 82 | 267 | 3 | | | |
| 4 | | | | | 4 | 255 | 268 | -96 | 283 | 4 | | | |
| 5 | | | | | 5 | 254 | 262 | -59 | 280 | 5 | | | |
| 6 | | | | | 6 | 500 | 228 | 2,018 | 261 | 6 | | | |
| 7 | | | | | 7 | 2479 | 2308 | 1,268 | 830 | 7 | | | |
| 8 | | | | | 8 | 258 | 257 | 7 | 277 | 8 | | | |
| 9 | | | | | 9 | 263 | 272 | -67 | 285 | 9 | | | |
| 10 | | | | | 10 | 296 | 276 | 148 | 287 | 10 | | | |
| 11 | | | | | 11 | 412 | 277 | 1,001 | 288 | 11 | | | |
| 12 | | | | | 12 | 372 | 360 | 89 | 328 | 12 | | | |
| 13 | | | | | 13 | 298 | 269 | 215 | 283 | 13 | | | |
| 14 | | | | | 14 | 321 | 283 | 282 | 291 | 14 | | | |
| 15 | | | | | 15 | 285 | 298 | -96 | 298 | 15 | | | |
| 16 | | | | | 16 | 259 | 217 | 312 | 255 | 16 | | | |
| 17 | | | | | 17 | 245 | 192 | 393 | 239 | 17 | | | |
| 18 | | | | | 18 | 189 | 202 | -96 | 246 | 18 | | | |
| 19 | | | | | 19 | 497 | 284 | 1,580 | 291 | 19 | | | |
| QC | | | | | QC | 492 | 269 | 1,654 | 283 | QC | | | |

Building Outside Surfaces 1 meter grid



Survey # UVA-FS-059

Meter # L2221 172051

Probe # 43-68 116718

Meter # L2221 *157031

Probe # 44-10 *155202

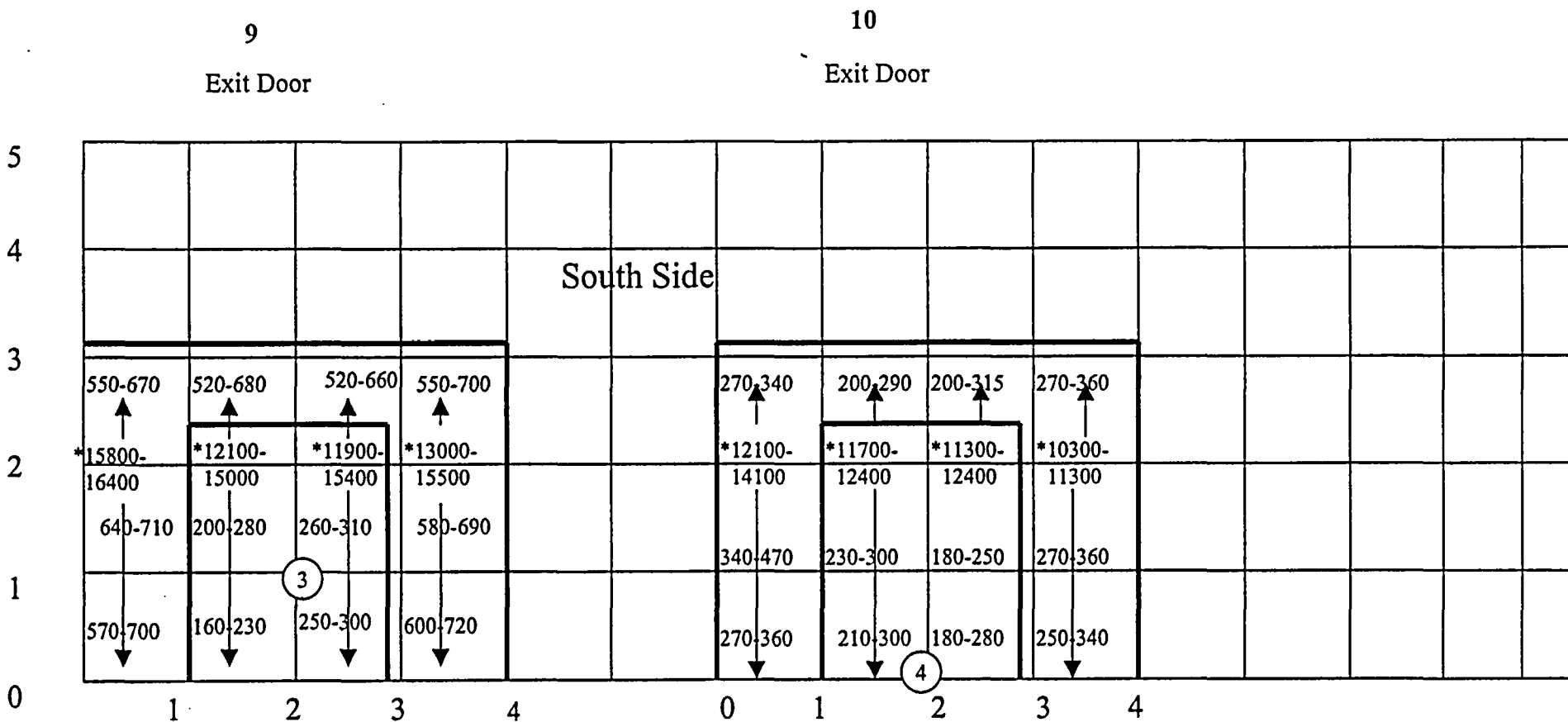
Date 7-21-03

Beta and Gamma Scans

Readings in CPM

O den (smear and static count locations.

Building Outside Surfaces 1 meter grid



Survey # UVA-FS-059

Meter # L2221 172051

Probe # 43-68 116718

Meter # L2221 *157031

Probe # 44-10 *155202

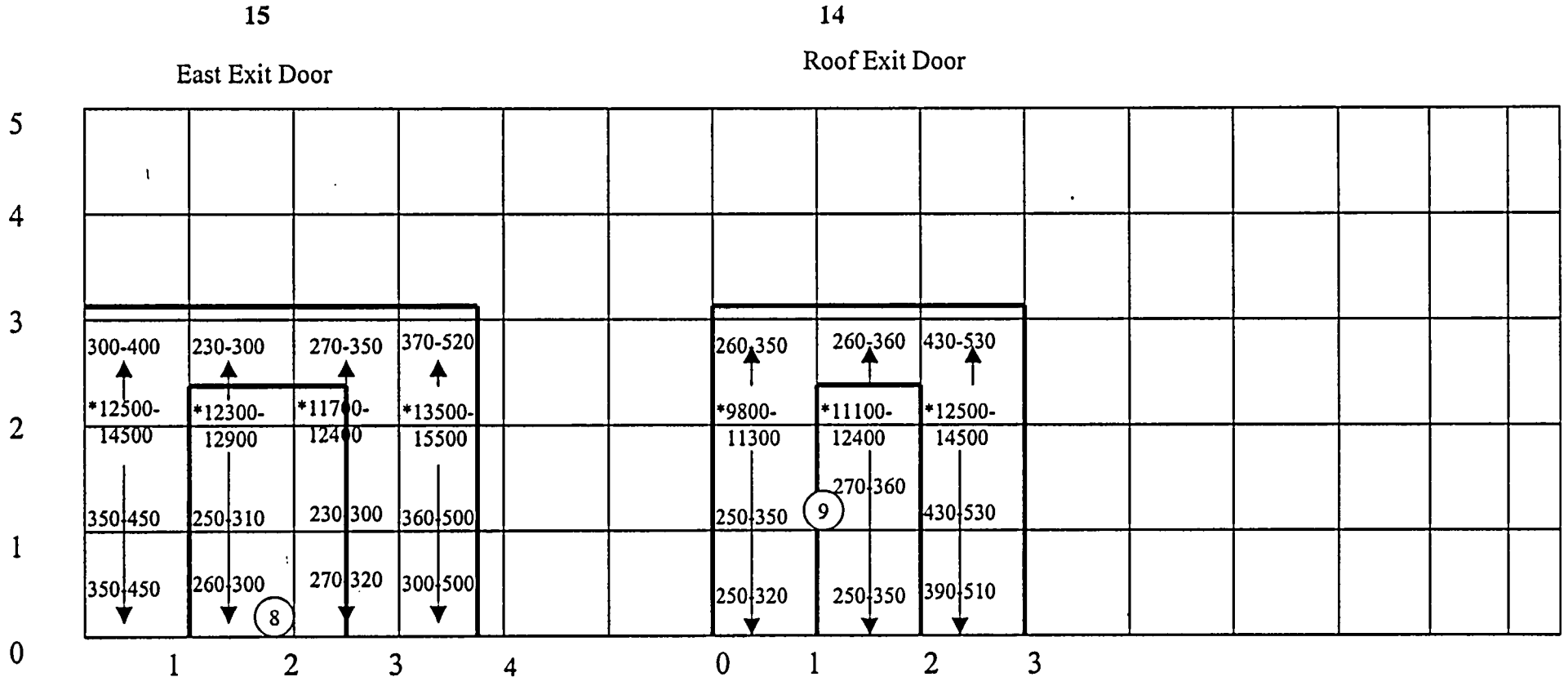
Date 7-18-03

Beta and Gamma Scans

Readings in CPM

O denotes smear and static count locations.

Building Outside Surfaces 1 meter grid



Survey # UVA-FS-059

Meter # L2221 172051

Probe # 43-68 116718

Meter # L2221 *157031

Probe # 44-10 *155202

Date 7-18-03

Beta and Gamma Scans

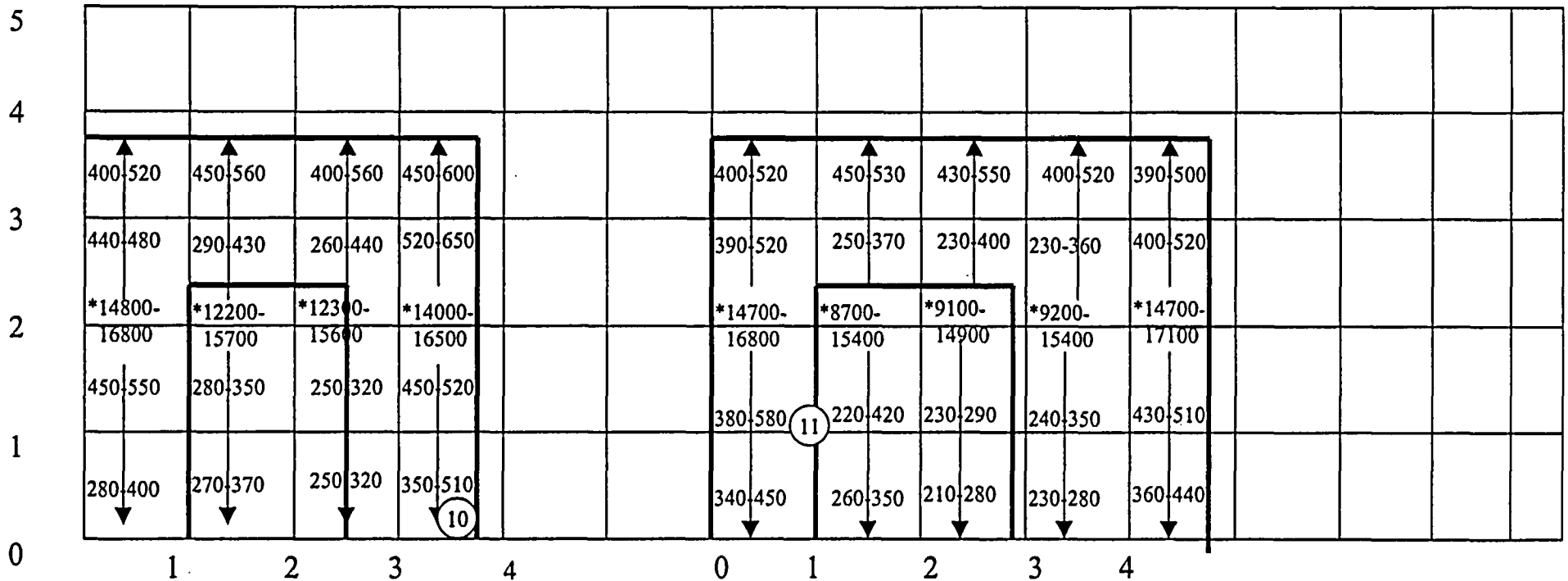
Readings in CPM

O den (smear and static count locations.

Building Outside Surfaces 1 meter grid

2
Roll-up Door

3
Reactor Containment Access Door



Survey # UVA-FS-059

Meter # L2221 172051

Probe # 43-68 116718

Meter # L2221 *157031

Probe # 44-10 *155202

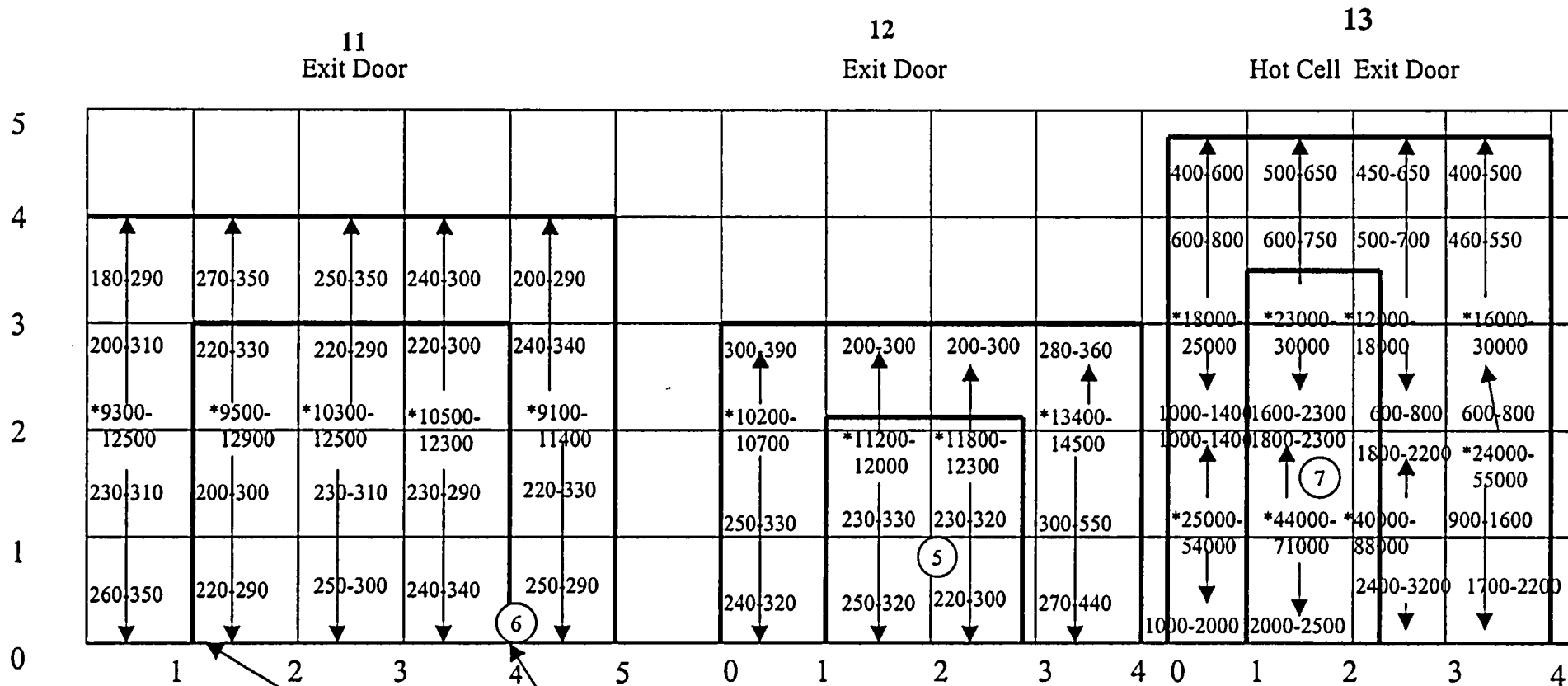
Date 7-21-03

Beta and Gamma Scans

Readings in CPM

O denotes smear and static count locations.

Building Outside Surfaces 1 meter grid South Side



Survey # UVA-FS-059
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202

Date 7-18-03

Beta and Gamma Scans

Readings in CPM

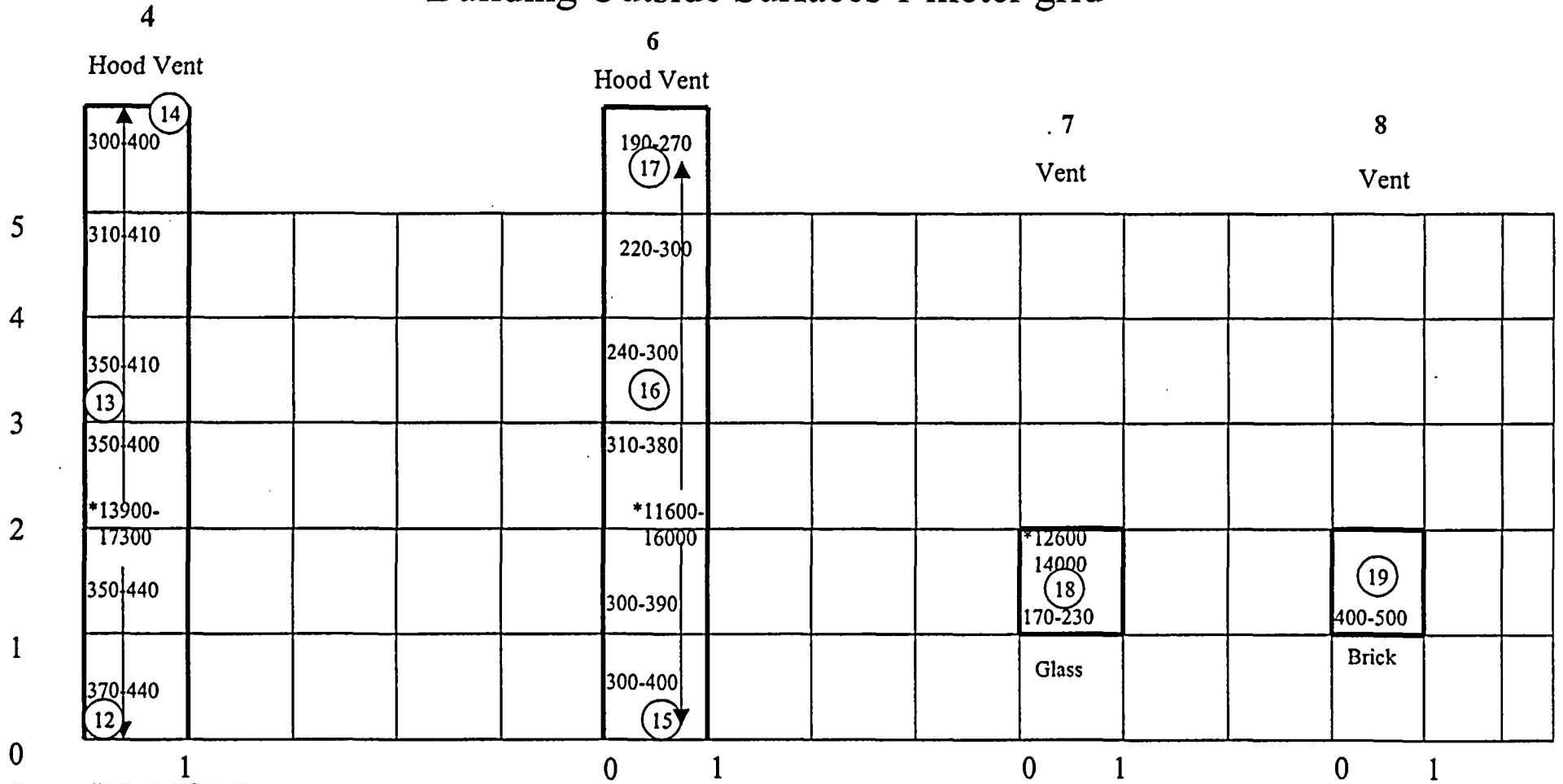
O denf smear and static count locations.

300-400 on
Outside corner
of threshold area

300-450 on Outside
corner of threshold

Shine from PuBe source
in the Hot Cell

Building Outside Surfaces 1 meter grid



Survey # UVA-FS-059

Meter # L2221 172051

Probe # 43-68 116718

Meter # L2221 *157031

Probe # 44-10 *155202

Date 7-18-03

Beta and Gamma Scans

Readings in CPM

O denotes smear and static count locations.



**UVAP
Radiological Survey Form**

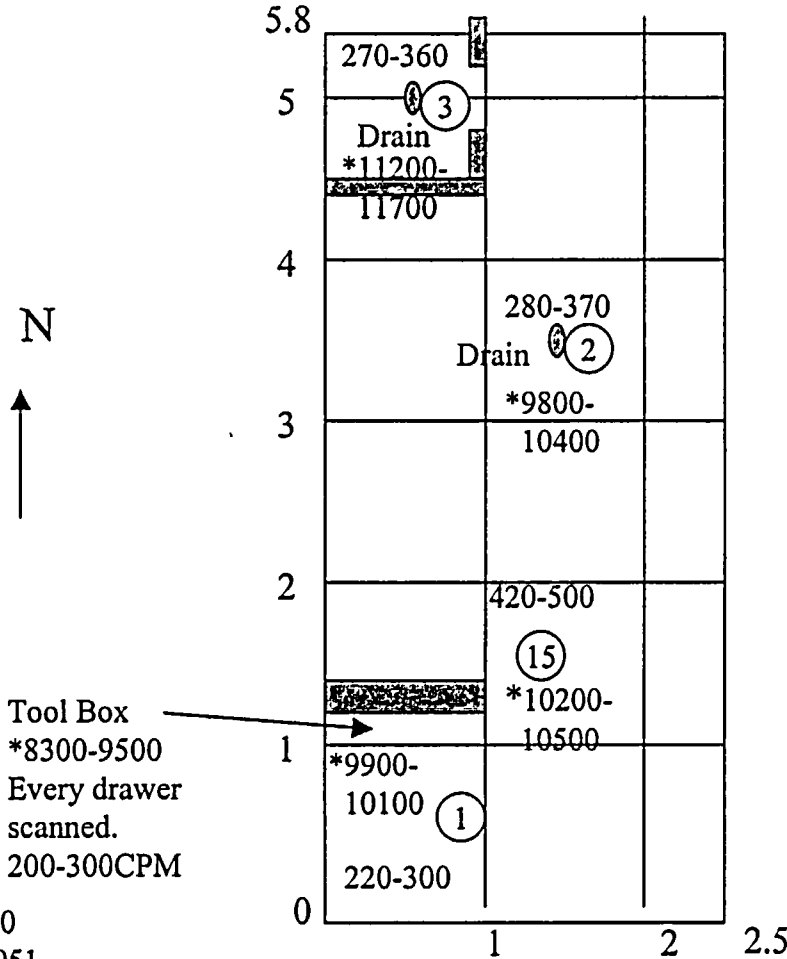
| | | | | | | | | | | | |
|---|--|-----------------------------|----------------------|----------------------|----------------------------------|---------------------|-----------------|---------------|---------------|-------------------|--------------------------------|
| Location: Nuclear Reactor Facility Inside | | RWP/IWP | Survey #: UVA-FS-060 | | Survey Type: Final Status Survey | | Page 1 of 6 | | | | |
| Comments: | | Surveyed By: Alice Thompson | Date: 07/21/03 | Instrument: Tennelec | Serial #: 64052 | Cal. Due: 4/16/2004 | Probe Area: n/a | Serial #: n/a | Cal. Due: n/a | β Eff.: n/a | M α β Bkg Lc: 319 |
| Final Status Survey of Room G002 | | Jason Strand | 07/21/03 | M-2221 | 172051 | 4/2/2004 | 43-68 | 126 | 116718 | 4/2/2004 | 0.107 |
| Class 3 | | | | M-2221 | 157031 | 3/17/2004 | 44-10 | n/a | 155202 | 3/17/2004 | n/a |
| Survey Unit 63 | | Reviewed By: Frank Myers | Date: 07/22/03 | | | | | | | | |
| Final Status Survey Addendum 004 | | | | | | | | | | | |

Key: = Smear xxx to xxx = Direct Fnsk = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad xy = contact/12" dose rate # = General dose rate

| Smears | | | | | Static Count β | | | | Coordinates | | | | |
|--------|----------|---------|------------------------|--|----------------------|---------------|-----|-------|-------------|-------|------|-----------|-----|
| No. | α | β | DPM/100cm ² | | No. | Unsh/Shielded | Net | Lc | No. | North | East | Elevation | |
| 1 | See | | | | 1 | 261 | 271 | -74 | 285 | 1 | 0.8 | 0.9 | 0 |
| 2 | Attached | | | | 2 | 347 | 256 | 675 | 277 | 2 | 3.1 | 1.5 | 0 |
| 3 | Report | | | | 3 | 311 | 261 | 371 | 279 | 3 | 5.1 | 1 | 0 |
| 4 | | | | | 4 | 381 | 251 | 964 | 274 | 4 | 0 | 1 | 0.7 |
| 5 | | | | | 5 | 567 | 253 | 2,329 | 275 | 5 | 5.8 | 1.9 | 0.7 |
| 6 | | | | | 6 | 285 | 244 | 304 | 270 | 6 | 0.5 | 0 | 0.5 |
| 7 | | | | | 7 | 527 | 241 | 2,121 | 268 | 7 | 2.8 | 0 | 0.6 |
| 8 | | | | | 8 | 558 | 240 | 2,359 | 268 | 8 | 5.2 | 0 | 1.4 |
| 9 | | | | | 9 | 554 | 249 | 2,262 | 273 | 9 | 4.5 | 2.5 | 0.1 |
| 10 | | | | | 10 | 260 | 249 | 82 | 273 | 10 | 3.9 | 2.5 | 1.6 |
| 11 | | | | | 11 | 553 | 232 | 2,381 | 263 | 11 | 0.9 | 2.5 | 0.9 |
| 12 | | | | | 12 | 870 | 328 | 4,020 | 313 | 12 | 4.5 | 1.9 | 2.5 |
| 13 | | | | | 13 | 476 | 284 | 1,424 | 291 | 13 | 2.3 | 1.5 | 2.5 |
| 14 | | | | | 14 | 501 | 341 | 1,187 | 319 | 14 | 0.2 | 0.5 | 2.5 |
| 15 | | | | | 15 | 506 | 322 | 1,365 | 310 | 15 | 1.5 | 1.5 | 0 |
| QC | | | | | QC | 457 | 289 | 1,246 | 294 | QC | 1.5 | 1.5 | 0 |

Room G002 Floor 1 meter grid

Z = 0

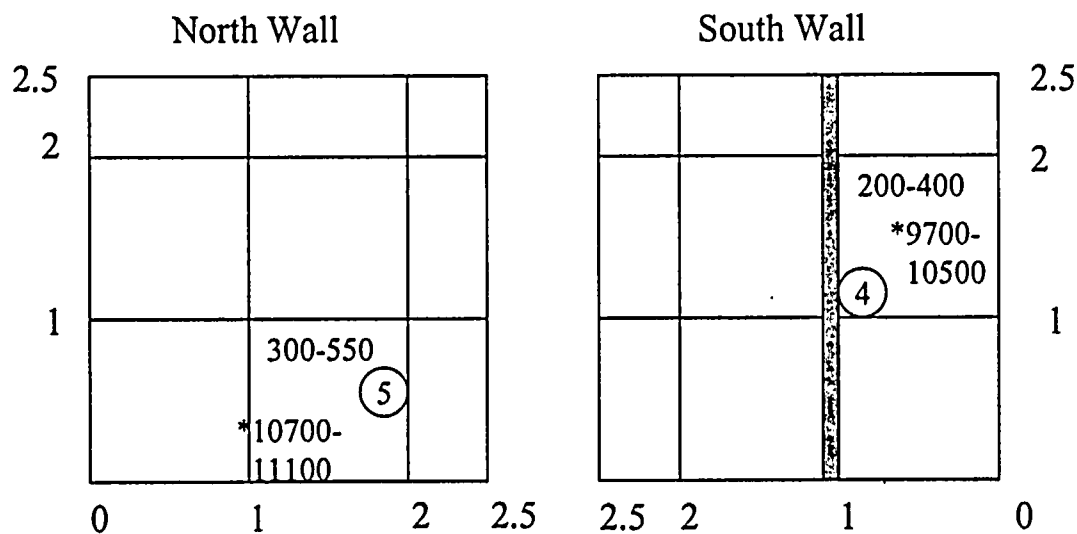


Survey # UVA-FS-060
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 72103

Beta and Gamma scans
 Readings in CPM
 O denotes smear and static
 count locations.

Room G002 North and South Walls 1 meter grid

N = 5.8



E

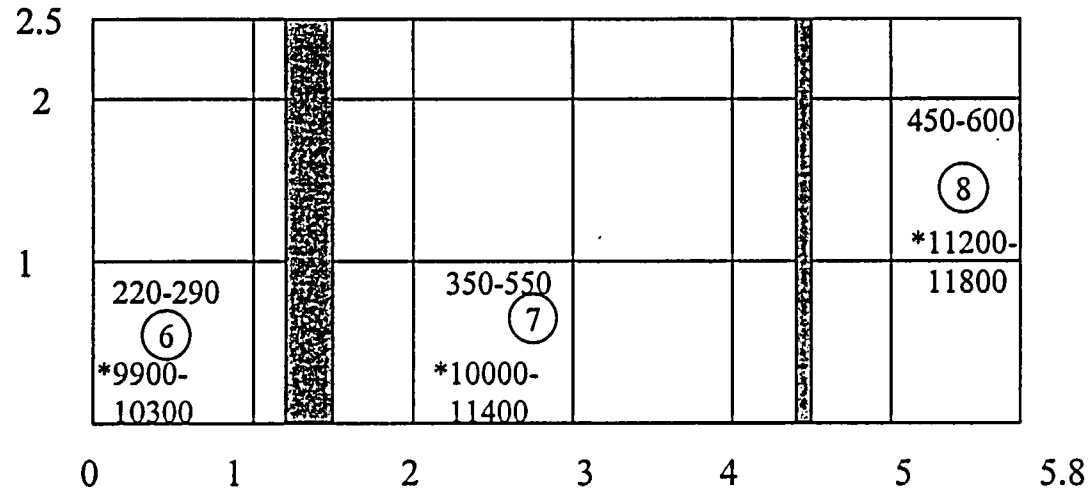
E



Survey # UVA-FS-060
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-21-03
 Beta and gamma Scans
 Readings in CPM
 O denotes smear and static count
 locations.

Room G002 West Walls 1 meter grid

$$E = 0$$



Survey # UVA-FS-060

Meter # L2221 172051

Probe # 43-68 116718

Meter # L2221 *157031

Probe # 44-10 *155202

Date 72103

Beta and Gamma Scans

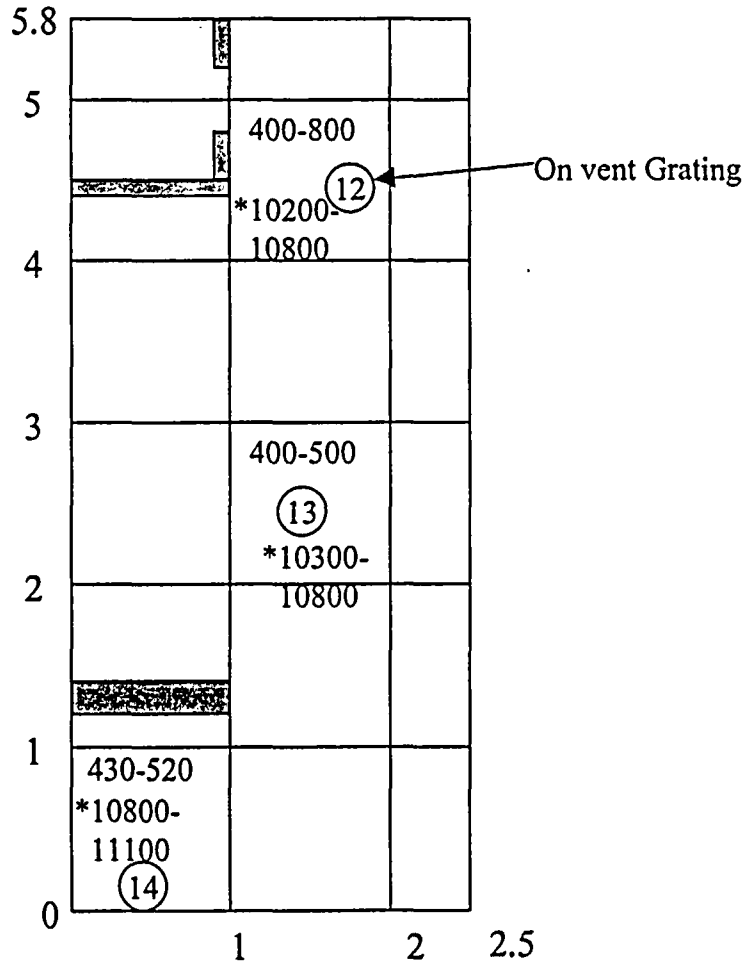
Readings in CPM

O denotes smear and static count locations.



Room G002 Ceiling 1 meter grid

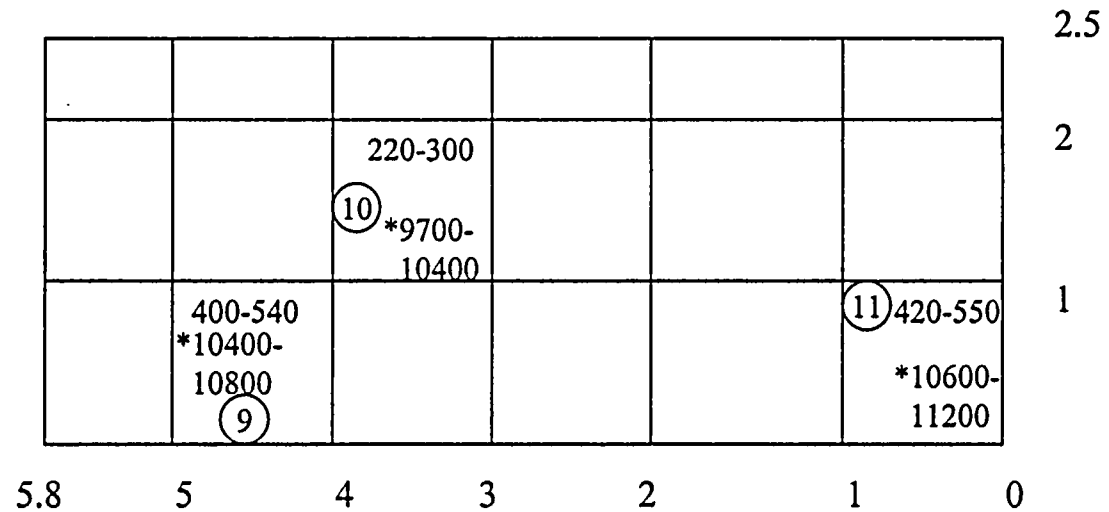
Z = 2.5



Survey # UVA-FS-060
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 72103
 Beta and Gamma scans
 Readings in CPM
 O denotes smear and static count
 locations.

Room G002 East Walls 1 meter grid

E = 2.5



Survey # UVA-FS-060
 Meter # L2221 172051
 Probe # 43-68 116178
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-21-03
 Beta and gamma Scans
 Readings in CPM
 O denotes smear and static count locations.

N ←



UVAP
Radiological Survey Form

| | | | | |
|--|--|---|---|---|
| Location: Nuclear Reactor Inside | RWPI/WP | Survey # UVA-FS-061 | Survey Type: Final Status Survey | Page 1 of 3 |
| Comments: | | | | |
| Final Status Survey of Elevator and Shaft Class 3 Survey Unit 64 Final Status Survey Addendum 004 | Surveyed By: Alice Thompson Jason Strand | Date: 07/23/03 07/21/03 | Instrument Tennelec M-2221 | Serial # 64052 172051 157031 |
| | Reviewed By: Frank Myers | Date: 07/22/03 | Cal. Due 4/16/2004 4/2/2004 3/17/2004 | Probe/Area n/a 43-68 44-10 |
| | | | Serial # n/a 116718 155202 | Cal. Due n/a 4/2/2004 3/17/2004 |
| | | | β Eff. n/a 0.107 n/a | Max β Bkg Lc 335 |

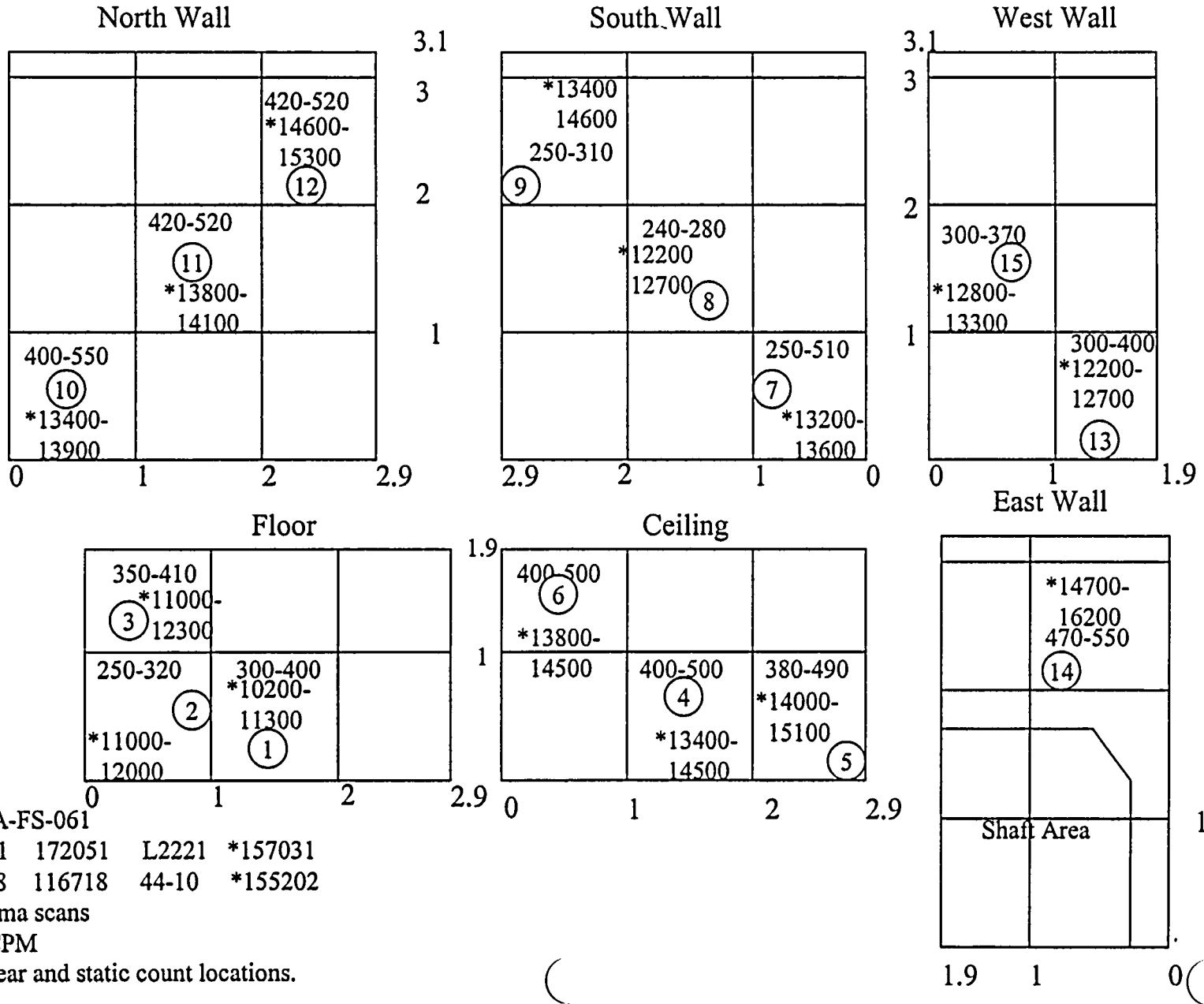
Key: \circ = Smear xxx to xxx = Direct FISH Δ = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad xy = contact/12" dose rate # = General dose rate

| Smears | | | | Static Count β | | | | Coordinates | | | | |
|--------|----------|---------|------------------------|----------------------|-----|-----|-------|-------------|-------|------|-----------|------|
| No. | α | β | DPM/100cm ² | No. | CPM | Net | Lc | No. | North | East | Elevation | |
| 1 | See | | | 1 | 407 | 322 | 630 | 310 | 1 | 0.25 | 1.5 | 0 |
| 2 | Attached | | | 2 | 314 | 297 | 126 | 298 | 2 | 1.7 | 1.7 | 0 |
| 3 | Report | | | 3 | 403 | 316 | 645 | 307 | 3 | 1.1 | 0.5 | 0 |
| 4 | | | | 4 | 501 | 284 | 1,610 | 291 | 4 | 0.5 | 1.5 | 3.1 |
| 5 | | | | 5 | 478 | 323 | 1,135 | 311 | 5 | 0.25 | 2.7 | 3.1 |
| 6 | | | | 6 | 424 | 330 | 697 | 314 | 6 | 1.5 | 0.5 | 3.1 |
| 7 | | | | 7 | 501 | 322 | 1,328 | 310 | 7 | 0 | 0.9 | 0.5 |
| 8 | | | | 8 | 257 | 271 | -104 | 285 | 8 | 0 | 1.4 | 1.1 |
| 9 | | | | 9 | 560 | 329 | 1,713 | 313 | 9 | 0 | 2.8 | 2.1 |
| 10 | | | | 10 | 500 | 312 | 1,394 | 305 | 10 | 1.9 | 0.5 | 0.4 |
| 11 | | | | 11 | 508 | 308 | 1,483 | 303 | 11 | 1.9 | 1.5 | 1.25 |
| 12 | | | | 12 | 522 | 375 | 1,090 | 335 | 12 | 1.9 | 2.5 | 2.25 |
| 13 | | | | 13 | 385 | 266 | 883 | 282 | 13 | 1.4 | 0 | 0.25 |
| 14 | | | | 14 | 549 | 340 | 1,550 | 319 | 14 | 0.7 | 2.9 | 2.1 |
| 15 | | | | 15 | 349 | 284 | 482 | 291 | 15 | 0.8 | 0 | 1.25 |
| QC | | | | QC | 377 | 289 | 653 | 294 | QC | 0.6 | 0 | 1.25 |
| 16 | | | | 16 | 303 | 229 | 549 | 282 | 16 | 0.3 | 0.8 | 0 |
| 17 | | | | 17 | 275 | 232 | 319 | 263 | 17 | 0.4 | 1.4 | 2.1 |
| 18 | | | | 18 | 250 | 228 | 163 | 261 | 18 | 0.3 | 1.9 | 1.4 |
| 19 | | | | 19 | 222 | 254 | -237 | 275 | 19 | 0.7 | 0 | 1.3 |
| 20 | | | | 20 | 255 | 264 | -67 | 281 | 20 | 1.5 | 0.8 | 1.1 |
| QC | | | | QC | 243 | 248 | -37 | 272 | QC | 1.5 | 0.8 | 1.1 |
| 21 | | | | 21 | 222 | 232 | -74 | 263 | 21 | 0 | 1.25 | 1.1 |
| 22 | | | | 22 | 491 | 303 | 1,394 | 301 | 22 | 1.4 | -0.2 | 2.25 |
| 23 | | | | 23 | 478 | 313 | 1,224 | 306 | 23 | 1.4 | 2 | 2.2 |
| QC | | | | QC | 524 | 326 | 1,469 | 312 | QC | 1.4 | 2 | 2.2 |

0

in shaft
in shaft
in shaft

Elevator Electrical Room 1 meter Grid



Survey # UVA-FS-061

Meter # L2221 172051 L2221 *157031

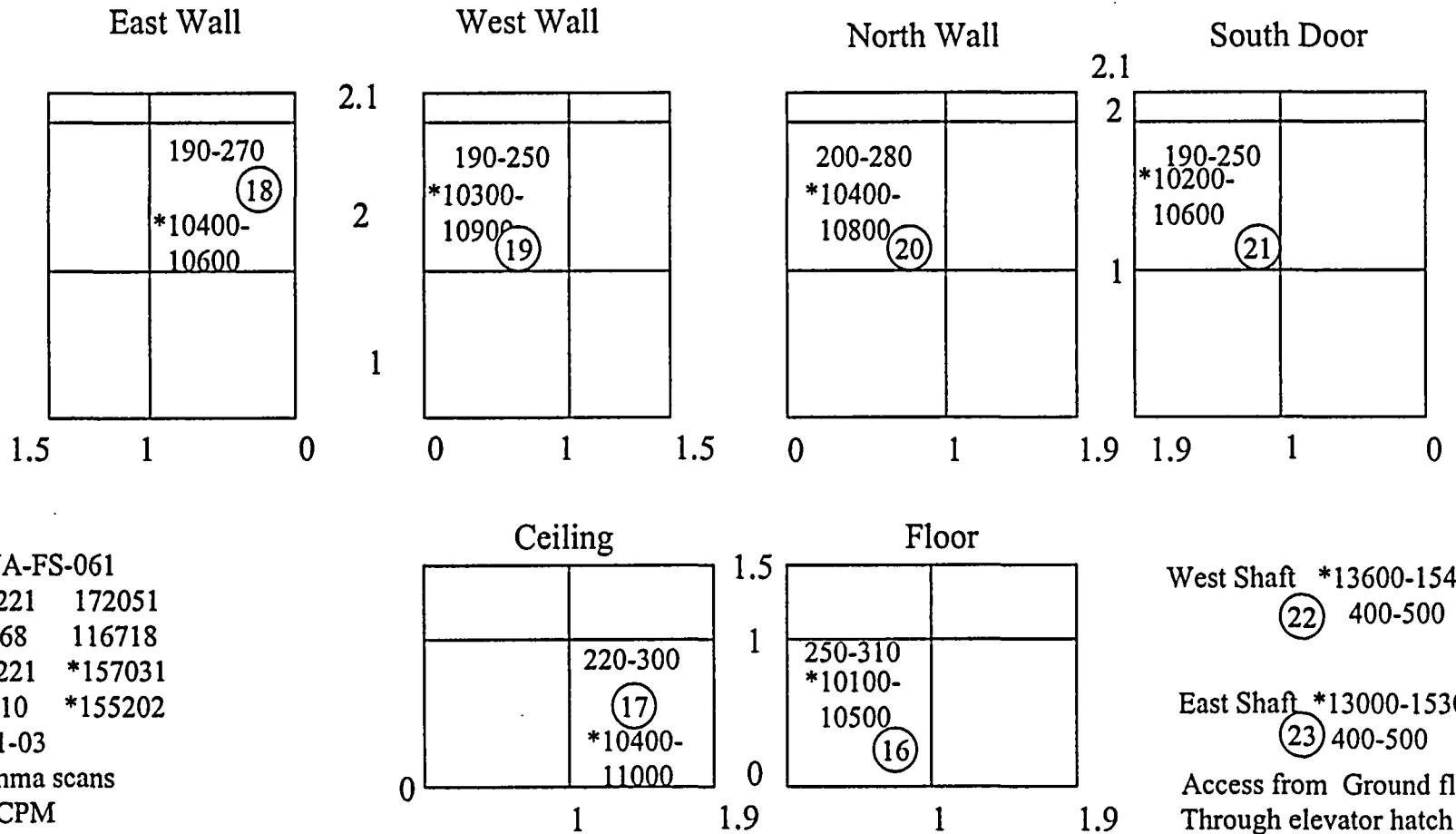
Probe # 43-68 116718 44-10 *155202

Beta and gamma scans

Readings in CPM

○ de (s smear and static count locations.

Elevator on Ground Floor and Shaft 1 meter grid



West Shaft *13600-15400
(22) 400-500

East Shaft *13000-15300
(23) 400-500

Access from Ground floor
Through elevator hatch

Survey # UVA-FS-061
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-21-03
 Beta and gamma scans
 Readings in CPM
 O denotes smear and static count locations.



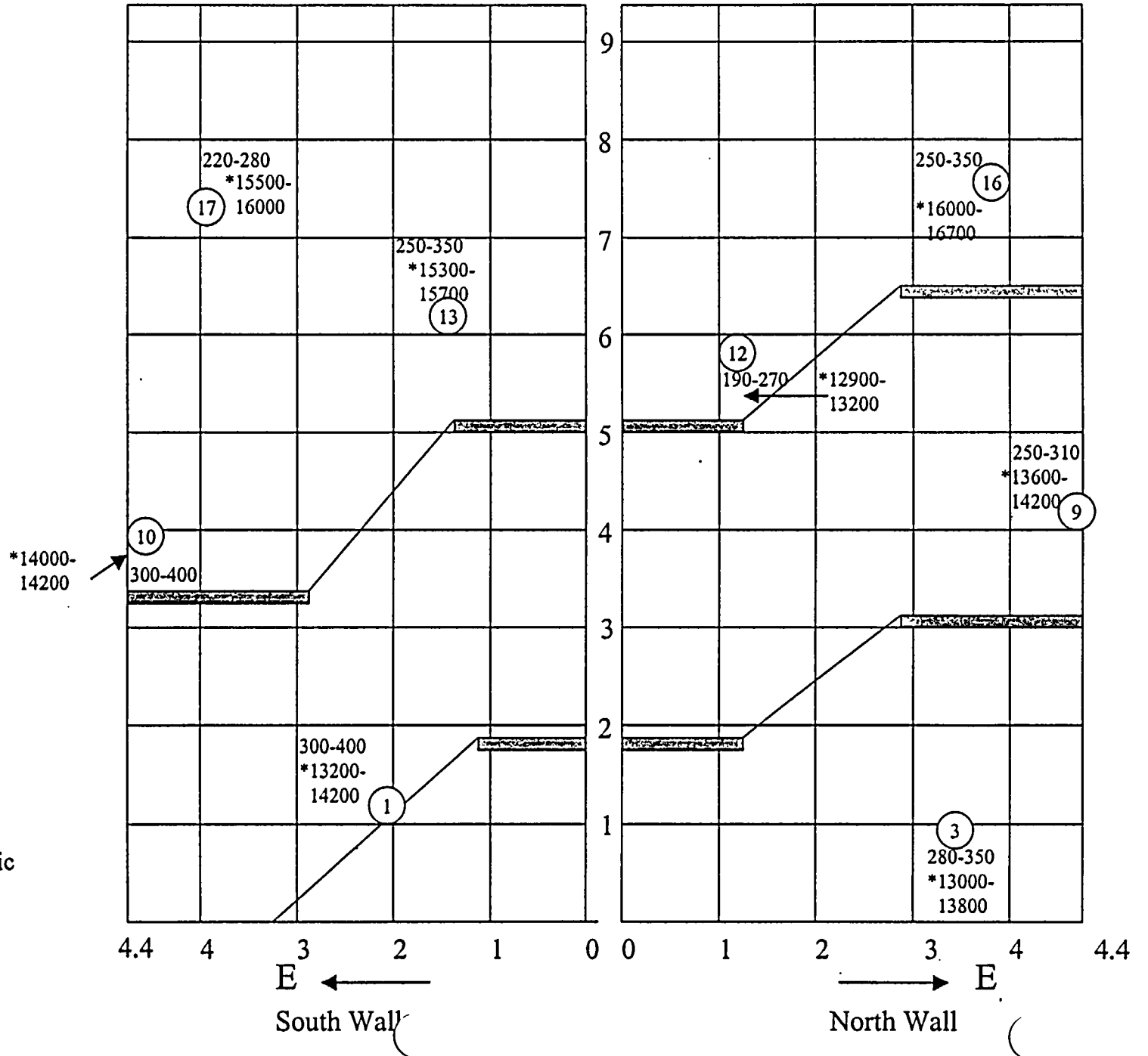
**UVAP
Radiological Survey Form**

| | | | | |
|--|---------------------------------------|-------------------------------|--|---------------------------------------|
| Location: Nuclear Reactor Inside | RWP/WP | Survey # UVA-FS-062 | Survey Type: Final Status Survey | Page 1 of 6 |
| Comments: | Surveyed By: Alice Thompson | Date: 07/23/03 | Instrument Tennelec | Serial # 64052 |
| Final Status Survey of MS1 | | | Cal. Due 4/16/2004 | Probe/Area n/a n/a |
| Class 2 | Jason Strand | 07/22/03 | M-2221 | 172051 |
| Survey Unit 46 | | | 4/2/2004 | 43-68 126 |
| Final Status Survey Addendum 004 | | | 3/17/2004 | 44-10 n/a 155202 |
| | Reviewed By: Frank Myers | Date: 07/23/03 | | Serial # n/a |
| | | | | Cal. Due n/a |
| | | | | β Eff. n/a |
| | | | | Max β Bkg Lc 289 |

Key: ○ = Smear xxx to xxx = Direct Fnsk △ = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | | Static Count β | | | | Coordinates | | | | |
|--------|-----------|---|------------------------|---|----------------|---------------|-----|------------------------|-------------|-----|-------|------|-----------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded | | DPM/100cm ² | | No. | North | East | Elevation |
| | α | β | α | β | | CPM | Net | Lc | | | | | |
| 1 | See | | | | 1 | 369 | 251 | 875 | 274 | 1 | 0 | 2 | 1 |
| 2 | Attached | | | | 2 | 332 | 259 | 541 | 278 | 2 | 1.5 | 4.4 | 1 |
| 3 | Report | | | | 3 | 311 | 219 | 682 | 256 | 3 | 2.4 | 3.5 | 1 |
| 4 | | | | | 4 | 389 | 276 | 838 | 287 | 4 | 0.5 | 2.5 | 1 |
| 5 | | | | | 5 | 352 | 249 | 764 | 273 | 5 | 1.5 | 0 | 0 |
| 6 | | | | | 6 | 300 | 211 | 660 | 251 | 6 | 1.5 | 0.25 | 1.7 |
| 7 | | | | | 7 | 279 | 202 | 571 | 246 | 7 | 1.5 | 2.8 | 3 |
| 8 | | | | | 8 | 335 | 262 | 541 | 280 | 8 | 1.5 | 4.4 | 4.9 |
| 9 | | | | | 9 | 315 | 278 | 274 | 288 | 9 | 2.4 | 4.4 | 4.35 |
| 10 | | | | | 10 | 378 | 260 | 727 | 289 | 10 | 0 | 4.4 | 3.9 |
| 11 | | | | | 11 | 324 | 244 | 593 | 270 | 11 | 1 | 2.5 | 4 |
| 12 | | | | | 12 | 228 | 208 | 163 | 248 | 12 | 2.4 | 1.25 | 5.7 |
| 13 | | | | | 13 | 310 | 234 | 564 | 264 | 13 | 0 | 1.25 | 6.25 |
| 14 | | | | | 14 | 294 | 219 | 556 | 256 | 14 | 1.5 | 0 | 5.5 |
| 15 | | | | | 15 | 259 | 218 | 304 | 255 | 15 | 1.5 | 2.5 | 6.25 |
| 16 | | | | | 16 | 312 | 217 | 705 | 255 | 16 | 2.4 | 4 | 7.9 |
| 17 | | | | | 17 | 264 | 193 | 527 | 240 | 17 | 0 | 4 | 7.4 |
| 18 | | | | | 18 | 319 | 227 | 682 | 260 | 18 | 1.5 | 3 | 9.5 |
| 19 | | | | | 19 | 245 | 256 | -82 | 277 | 19 | 1.5 | 4.4 | 8 |
| QC | | | | | QC | 287 | 255 | 237 | 276 | QC | 1.5 | 4.4 | 8 |

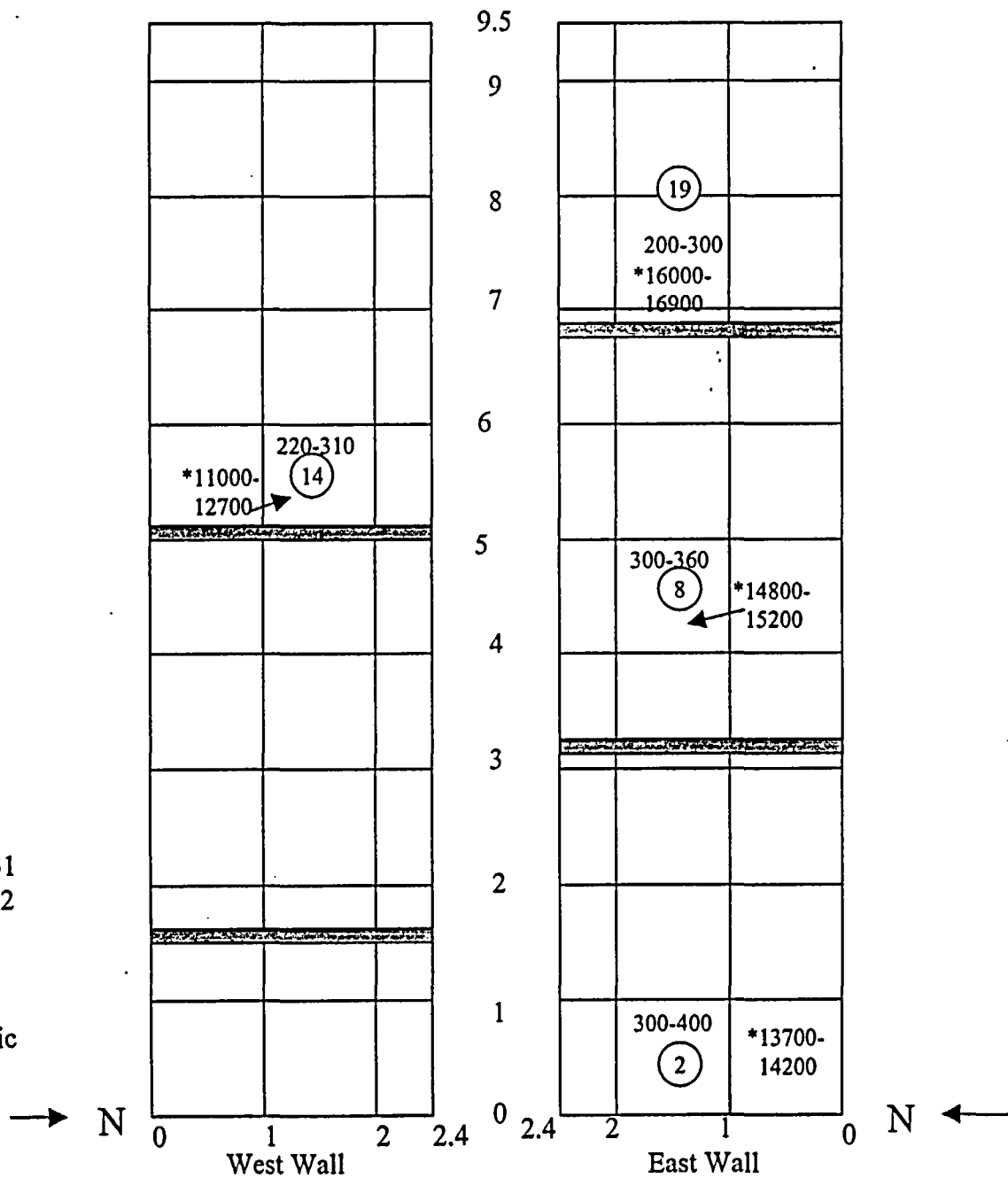
Room MS1 Walls 1 meter grid



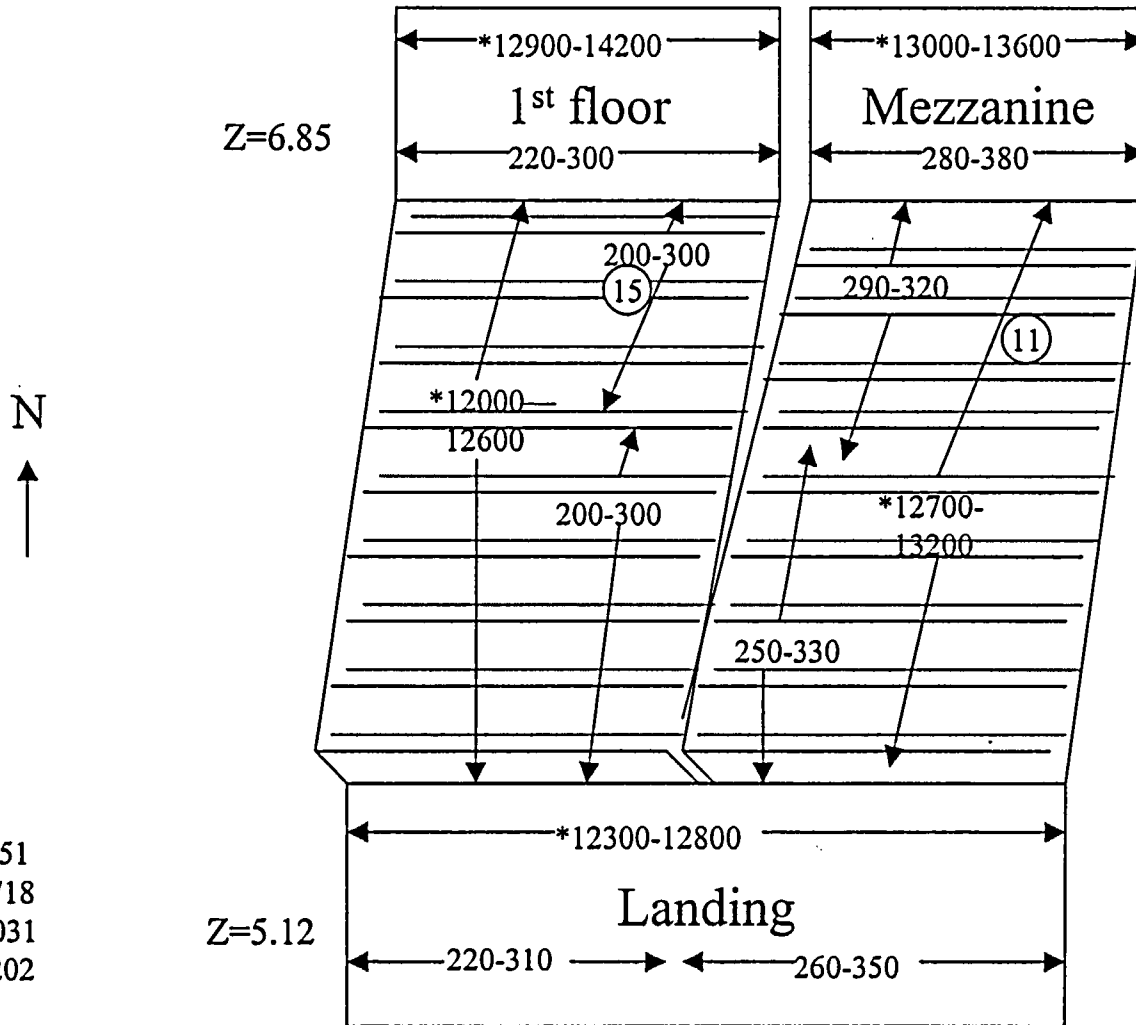
Survey #UVA-FS-062
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-22-03
 Beta and gamma Scans
 Readings in CPM
 O denotes smear and static
 count locations.

Room MS1 Walls 1 meter grid

Survey # UVA-FS-062
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-22-03
 Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static
 count location.

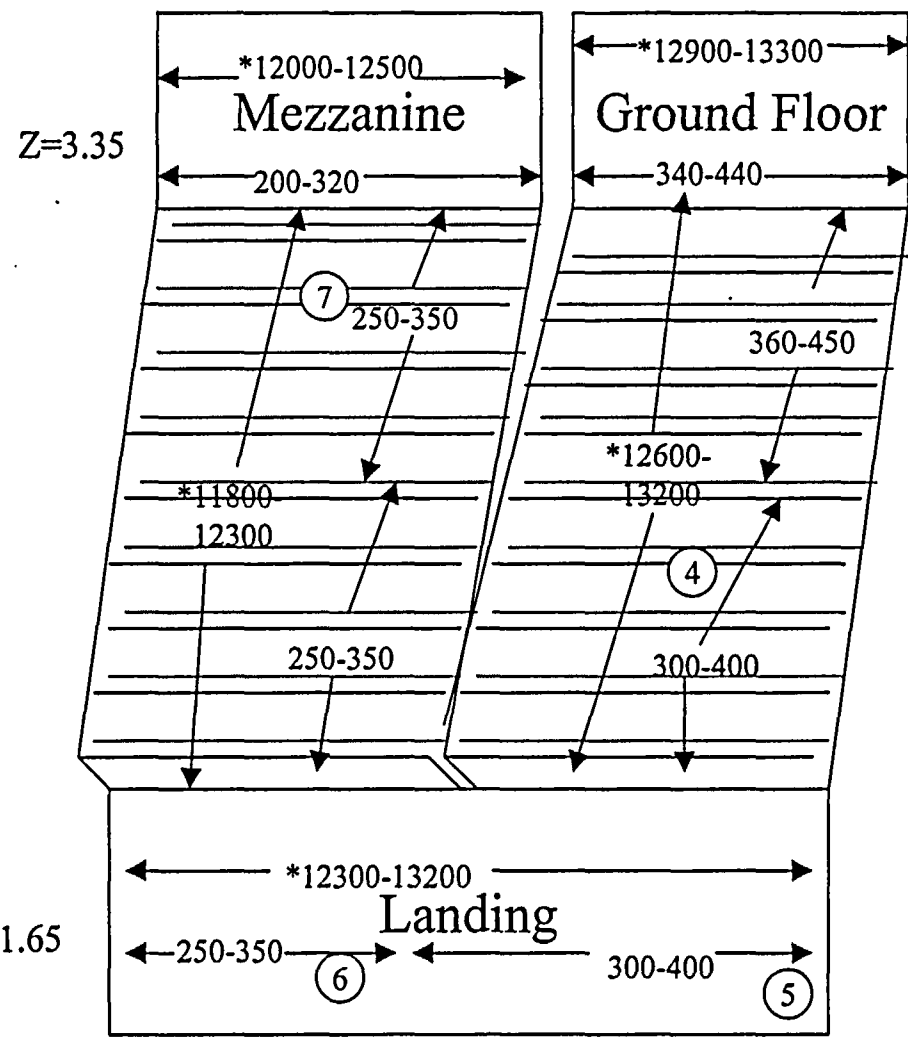


Room MS1 Stairs



Survey # UVA-FS-062
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-22-03
 Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count
 locations.

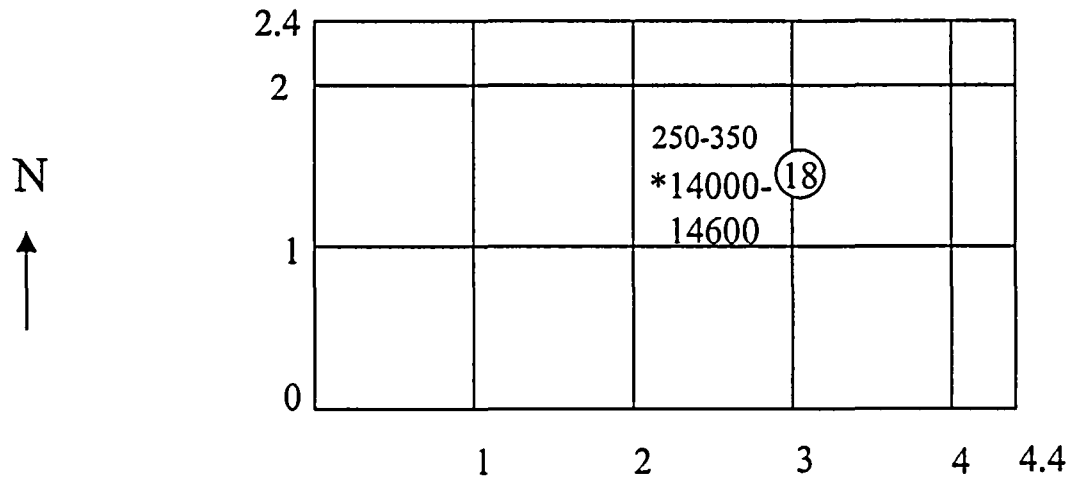
Room MS1 Stairs



Survey # UVA-FS-062
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-22-03
 Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations.

Room MS1 Ceiling 1 meter grid

Z = 9.5



Survey # UVA-FS-062

Meter # L2221 172051

Probe # 43-68 116718

Meter # L2221 *157031

Probe # 44-10 *155202

Date 72203

Beta and Gamma scans

Readings in CPM

O denotes smear and static count location.



**UVAP
Radiological Survey Form**

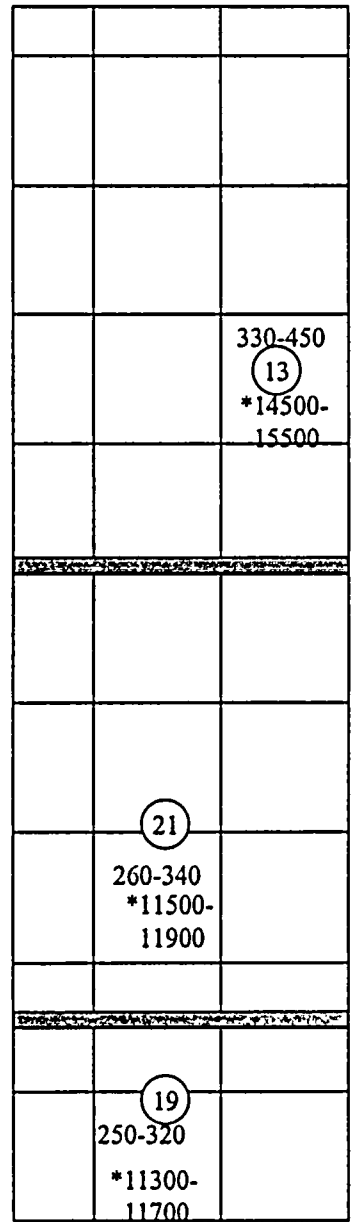
| | | | | | |
|---|--|------------------------------------|----------------------------|---|--------------------------|
| Location: Nuclear Reactor Inside | | RWP/WP | Survey # UVA-FS-063 | Survey Type: Final Status Survey | Page 1 of 6 |
| Comments: | | Surveyed By: Alice Thompson | Date: 07/24/03 | Instrument: Ternelec | Serial #: 64052 |
| Final Status Survey of MS2 | | Date: 07/23/03 | Cat. Due: 4/16/2004 | Probe Area: n/a | Serial #: n/a |
| Class 2 | | Surveyed By: Jason Strand | Date: 07/23/03 | Cat. Due: 4/2/2004 | Probe Area: 43-68 |
| Survey Unit 47 | | Surveyed By: Brad Myers | Date: 07/23/03 | Cat. Due: 3/17/2004 | Probe Area: 44-10 |
| Final Status Survey Addendum 004 | | Surveyed By: Frank Myers | Date: 07/25/03 | Cat. Due: | Probe Area: |
| | | Reviewed By: | Date: | Cal. Due: | β Eff.: |
| | | | | | M α β Bkg Lc |

Key: ○ = Smear xxx to xxx = Direct Fmsh △ = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | Static Count β | | | | Coordinates | | | | |
|--------|-----------|---|------------------------|----------------|---------------|-----|------------------------|-------------|-------|------|-----------|------|
| No. | Gross CPM | | DPM/100cm ² | No. | Unsh/Shielded | | DPM/100cm ² | No. | North | East | Elevation | |
| | α | β | | | α | β | | | | | | Net |
| 1 | See | | | 1 | 238 | 251 | -96 | 274 | 1 | 3.2 | 0.6 | 0 |
| 2 | Attached | | | 2 | 325 | 244 | 601 | 270 | 2 | 2.8 | 2.4 | 2.2 |
| 3 | Report | | | 3 | 344 | 281 | 467 | 290 | 3 | 2 | 0 | 3.4 |
| 4 | | | | 4 | 295 | 310 | -111 | 304 | 4 | 2 | 0.6 | 1 |
| 5 | | | | 5 | 403 | 310 | 690 | 304 | 5 | 2 | 2.4 | 4.6 |
| 6 | | | | 6 | 273 | 248 | 185 | 272 | 6 | 4.2 | 0 | 5 |
| 7 | | | | 7 | 250 | 244 | 45 | 270 | 7 | 4.2 | 2.6 | 3.35 |
| 8 | | | | 8 | 359 | 295 | 475 | 297 | 8 | 4.2 | 2.4 | 6 |
| 9 | | | | 9 | 394 | 327 | 497 | 313 | 9 | 4.7 | 0.6 | 6.2 |
| 10 | | | | 10 | 295 | 295 | 0 | 297 | 10 | 1 | 0 | 1.4 |
| 11 | | | | 11 | 398 | 300 | 727 | 299 | 11 | 1 | 2.4 | 5.3 |
| 12 | | | | 12 | 479 | 341 | 1,024 | 319 | 12 | 1 | 2.4 | 9.3 |
| 13 | | | | 13 | 421 | 389 | 237 | 341 | 13 | 0 | 0.6 | 6.8 |
| 14 | | | | 14 | 400 | 292 | 801 | 295 | 14 | 2 | 2.4 | 6 |
| 15 | | | | 15 | 449 | 327 | 905 | 313 | 15 | 2 | 2.4 | 9 |
| 16 | | | | 16 | 520 | 354 | 1,231 | 325 | 16 | 4.7 | 0.6 | 6.8 |
| 17 | | | | 17 | 459 | 373 | 638 | 334 | 17 | 4.7 | 2.4 | 9 |
| 18 | | | | 18 | 460 | 327 | 967 | 313 | 18 | 3.5 | 0.6 | 9.5 |
| 19 | | | | 19 | 307 | 249 | 430 | 273 | 19 | 0 | 1.6 | 1 |
| 20 | | | | 20 | 346 | 271 | 556 | 285 | 20 | 4.7 | 1.6 | 1.2 |
| QC | | | | QC | 314 | 293 | 156 | 296 | QC | 4.7 | 1.6 | 1.2 |
| 21 | | | | 21 | 298 | 247 | 378 | 272 | 21 | 0 | 1.6 | 3 |
| 22 | | | | 22 | 313 | 263 | 371 | 280 | 22 | 2 | 1.6 | 2.4 |
| 23 | | | | 23 | 326 | 302 | 178 | 300 | 23 | 1.5 | 0.6 | 4.8 |
| 24 | | | | 24 | 373 | 374 | -7 | 334 | 24 | 2 | 1.8 | 5.8 |
| 25 | | | | 25 | 377 | 281 | 712 | 290 | 25 | 4.7 | 1.6 | 8.2 |
| QC | | | | QC | 370 | 312 | 430 | 305 | QC | 4.7 | 1.6 | 8.2 |

Room MS2 Walls 1 meter grid

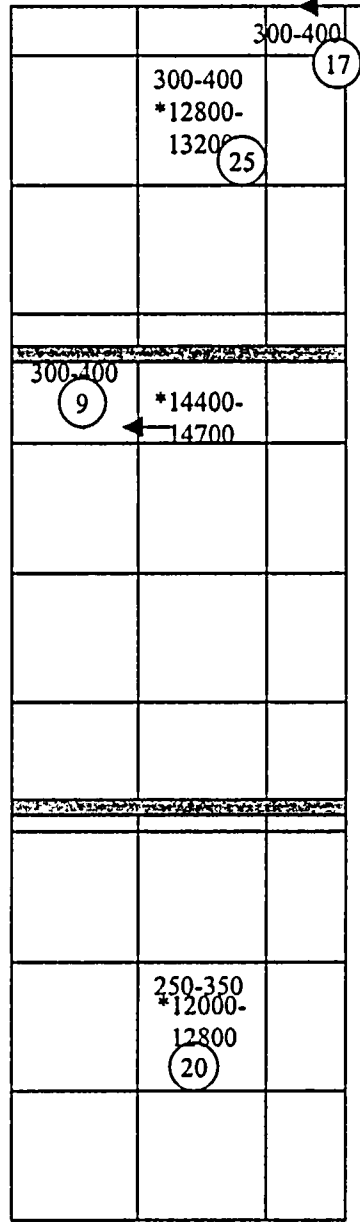
N = 0



9.5
9
8
7
6
5
4
3
2
1

*13300-13500

N = 4.7



Survey # UVA-FS-063

Meter # L2221 172051

Probe # 43-68 116718

Meter # L2221 *157031

Probe # 44-10 *155202

Date 7-23-03

Beta and gamma scans

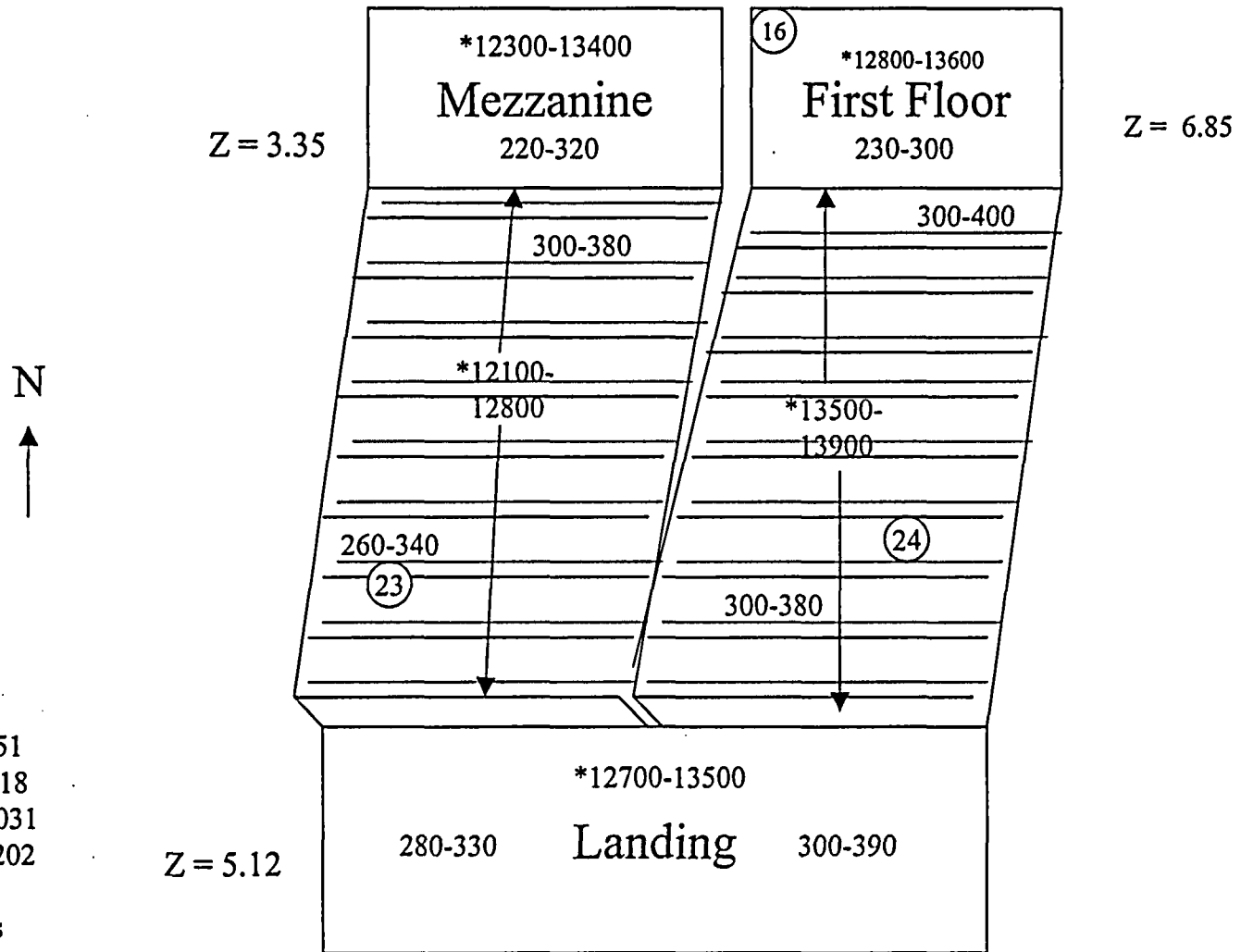
Readings in CPM

O denotes smear and static count locations.

E ← 2.4 2 1 0
South Wall

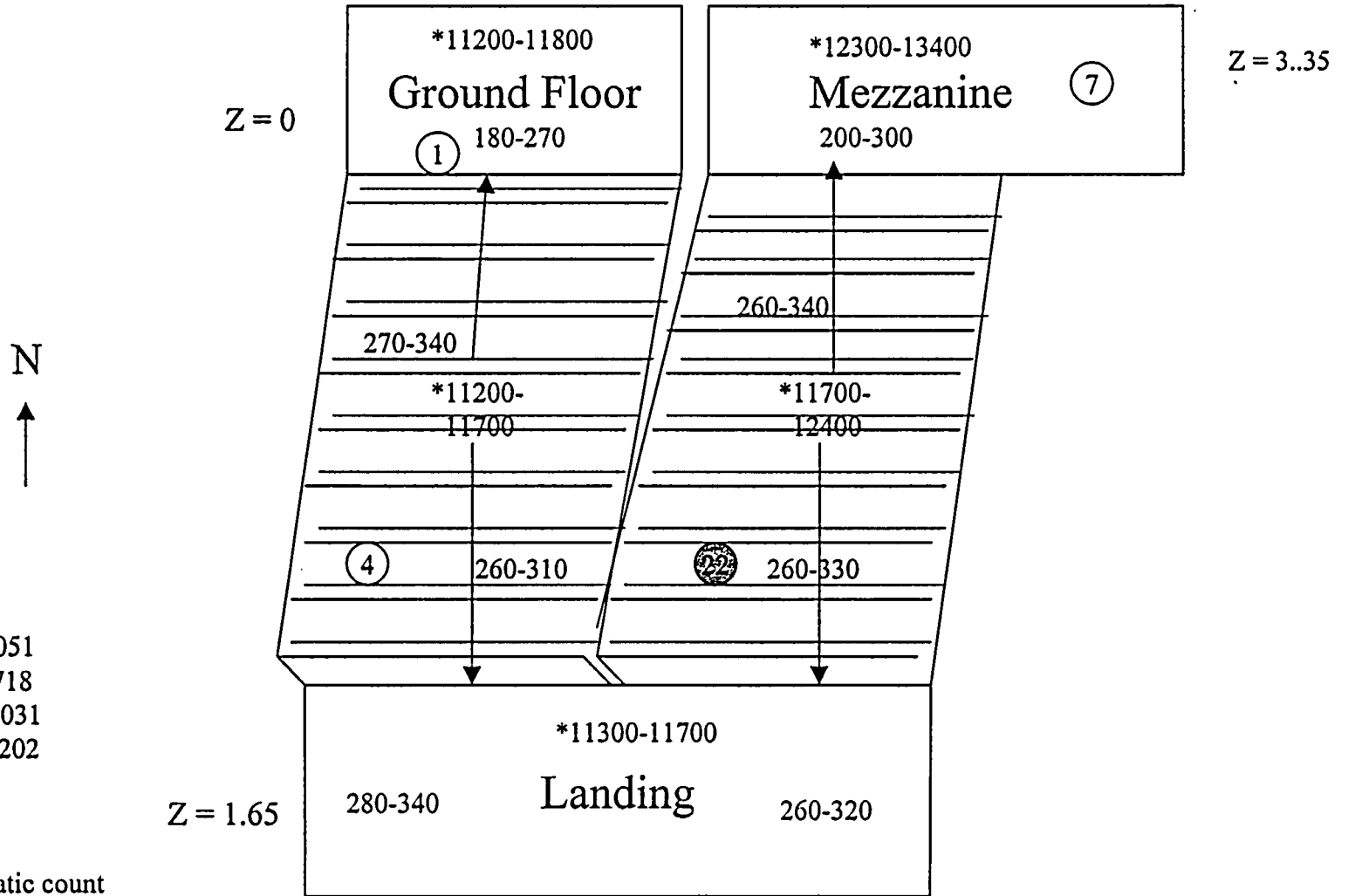
0 1 2 2.4 E
North Wall →

Room MS2 Stairs



Survey # UVA-FS-063
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-23-03
 Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count locations.

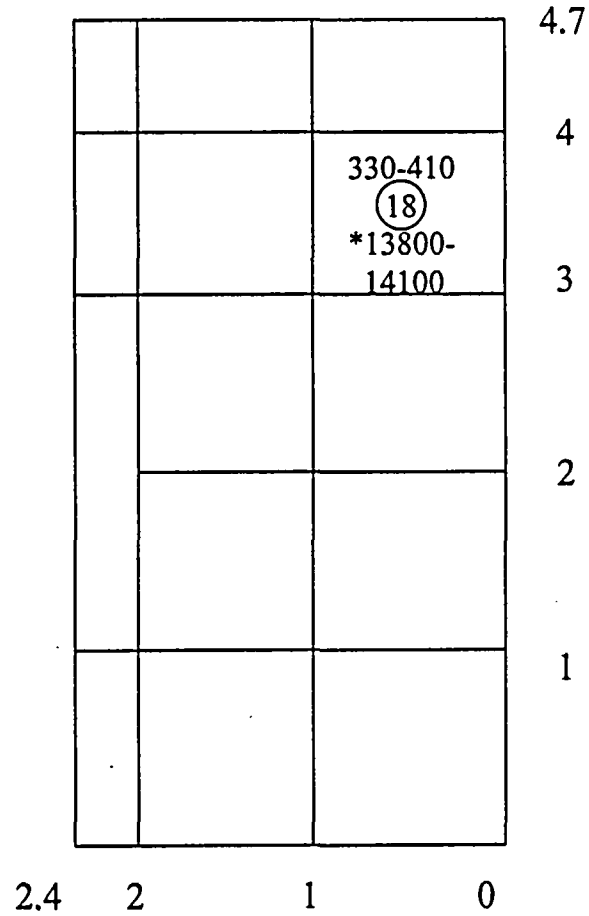
Room MS2 Stairs



Survey # UVA-FS- 063
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-23-03
 Beta and gamma Scans
 Readings in CPM
 O denotes smear and static count
 locations.

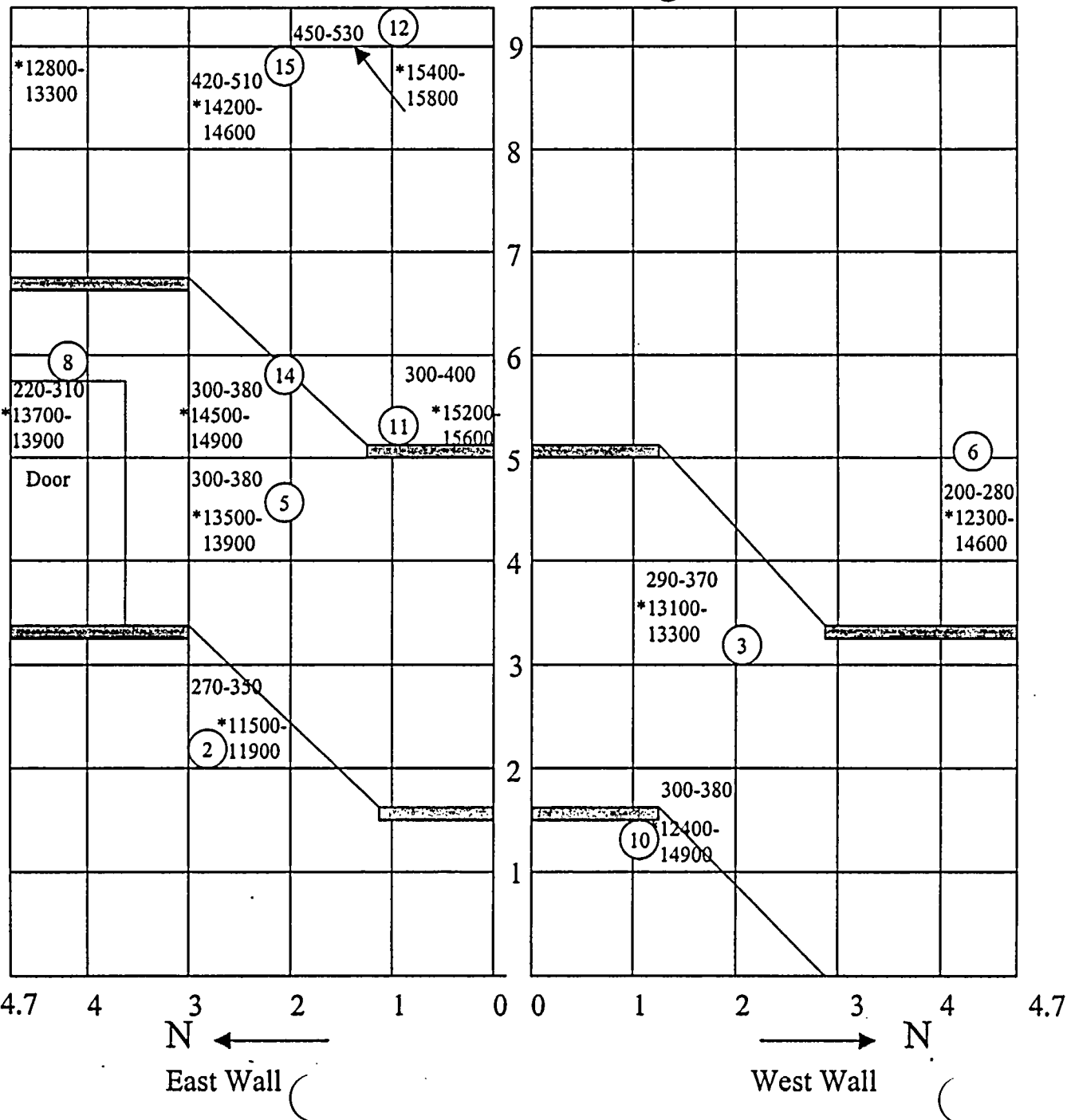
Rooms MS2 Ceiling

Z = 9.85



Survey # UVA-FS-063
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-23-03
 Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static count location.

Room MS2 Walls 1 meter grid



Survey # UVA-FS-063
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-23-03
 Beta and Gamma scans
 Readings in CPM
 O denotes smear and static count locations.



**UVAP
Radiological Survey Form**

| | | | | |
|--|--|---|--|-----------------------------------|
| Location: Deminerlizer Room | RWP/WP | Survey # UVA-FS-064 | Survey Type: Final Status Survey | Page 1 of 2 |
| Comments: | Surveyed By: Alice Thompson Date: 07/28/03 | Instrument: Tennelec Serial #: 64052 Cal. Due: 4/16/2004 | Probe/Area: n/a/n/a Serial #: n/a Cal. Due: n/a | β Eff.: n/a M α x β Bkg Lc |
| Final Status Survey of paved area outside Reactor Containment roll-up door | Jason Strand 07/24/03 | M-2221 172051 4/2/2004 | 43-68 126 116718 4/2/2004 | 0.107 365 |
| Survey Unit 61 | Brad Myers 07/24/03 | M-2221 157031 3/17/2004 | 44-10 n/a 155202 3/17/2004 | n/a |
| Final Status Survey Addendum 007 | Reviewed By: Frank Myers Date: 07/28/03 | | | |

Key: = Smear xxx to xxx = Direct Frisk = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | | Static Count β | | | | Coordinates | | | Sample ID | | |
|--------|----------|---|---|---|----------------|------|-----|-------|-------------|-------|------|-----------|-----------|--------------|
| No. | α | β | α | β | No. | CPM | Net | Lc | No. | North | East | | Elevation | |
| 1 | See | | | | 1 | 450 | 294 | 1,157 | 296 | 1 | 0.9 | 3.1 | 0 | |
| 2 | Attached | | | | 2 | 428 | 319 | 808 | 309 | 2 | 0.8 | 2.4 | 0 | |
| 3 | Report | | | | 3 | 610 | 374 | 1,750 | 334 | 3 | 0.8 | 1.5 | 0 | |
| 4 | | | | | 4 | 657 | 355 | 2,240 | 326 | 4 | 0.9 | 0.9 | 0 | UVA-SLFS-095 |
| 5 | | | | | 5 | 562 | 328 | 1,736 | 313 | 5 | 1.6 | 0.9 | 0 | |
| 6 | | | | | 6 | 811 | 475 | 2,492 | 377 | 6 | 1.9 | 1.9 | 0 | UVA-SLFS-096 |
| 7 | | | | | 7 | 522 | 381 | 1,046 | 337 | 7 | 1.5 | 2.1 | 0 | |
| 8 | | | | | 8 | 478 | 351 | 942 | 324 | 8 | 1.8 | 3.1 | 0 | |
| 9 | | | | | 9 | 1080 | 427 | 4,843 | 357 | 9 | 2.8 | 3.1 | 0 | UVA-SLFS-099 |
| 10 | | | | | 10 | 1481 | 496 | 7,306 | 385 | 10 | 2.8 | 2.1 | 0 | UVA-SLFS-097 |
| 11 | | | | | 11 | 1129 | 429 | 5,192 | 358 | 11 | 2.8 | 1.9 | 0 | |
| 12 | | | | | 12 | 562 | 394 | 1,246 | 343 | 12 | 2.8 | 0.9 | 0 | |
| 13 | | | | | 13 | 500 | 382 | 875 | 338 | 13 | 3.1 | 0.7 | 0 | |
| 14 | | | | | 14 | 1410 | 411 | 7,410 | 350 | 14 | 3.4 | 1.6 | 0 | UVA-SLFS-098 |
| 15 | | | | | 15 | 744 | 370 | 2,774 | 332 | 15 | 3.1 | 2.5 | 0 | |
| 16 | | | | | 16 | 1187 | 455 | 5,429 | 369 | 16 | 3.1 | 3.1 | 0 | |
| QC | | | | | QC | 1151 | 400 | 5,570 | 346 | QC | 3.1 | 3.1 | 0 | |

Paved area outside Rx Containment roll-up Door

| | | | | | |
|---|---------------------------------|----------------------------------|----------------------------------|----------------------------------|---|
| 4 | 340-500 *14200-18000 (13) | 600-1100 (14) *16000-24000 | 450-600 *15000-18000 (15) | 500-1000 *15200-16400 (16) | |
| 3 | (12) 410-570 *14000-24000 | (11) 650-1000 *25000-31000 | (10) 700-1000 *19000-25000 | (9) 390-870 *16000-17800 | |
| 2 | (5) 380-620 *15500-20000 | (6) 500-700 *19000-30000 | (7) 420-550 *17500-19000 | (8) 420-520 *15200-17000 | |
| 1 | (4) 400-620 *16100-19100 | (3) 400-600 *15300-19400 | (2) 320-480 *15600-16800 | (1) 340-470 *14100-15500 | |
| | 0 | 1 | 2 | 3 | 4 |



Survey # UVA-FS-064
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *1558202
 Date 7-24-03
 Beta and Gamma Scans
 Readings in CPM
 O denotes smear and static
 count locations.



**UVAP
Radiological Survey Form**

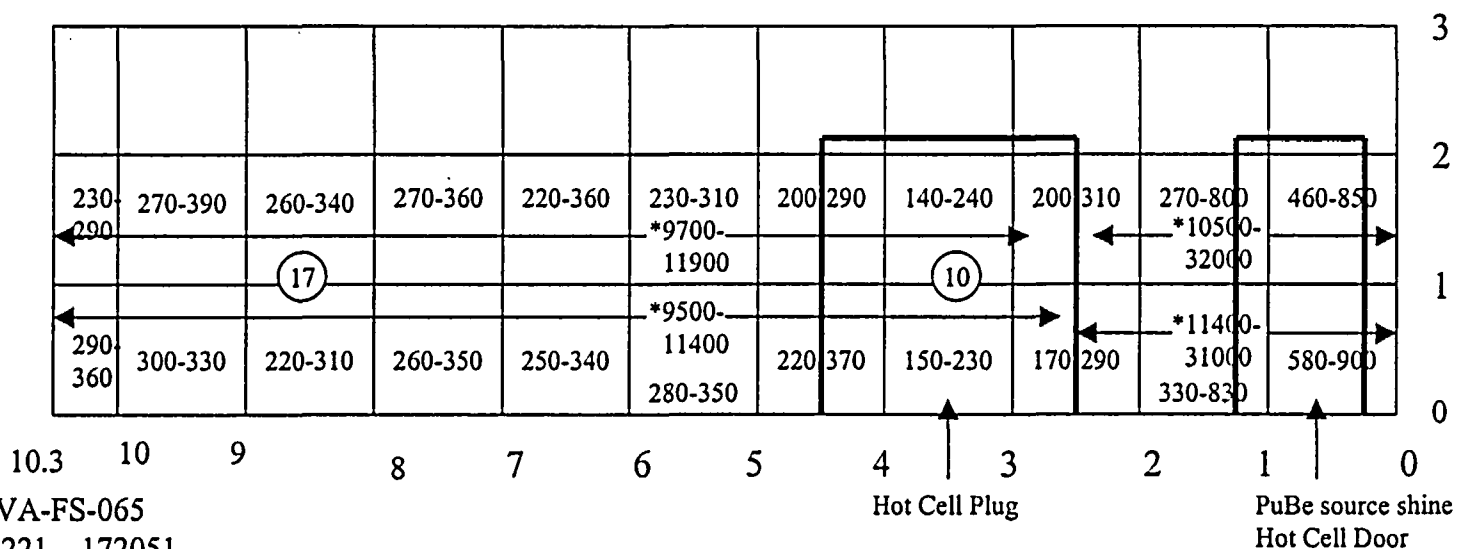
| | | | | | | | | | | |
|--|--|-------------------------------|--|------------------------------|------------------------------------|---------------------------------|----------------------------|------------------------------|------------------------|----------------------------|
| Location: Nuclear Reactor Inside | RWP/WP | Survey # UVA-FS-065 | Survey Type: Final Status Survey | Page 1 of 7 | | | | | | |
| Comments: Final Status Survey of Room G020 East Class 1 lower walls and floor. | Surveyed By: Alice Thompson Jason Strand | Date: 07/28/03 07/25/03 | Instrument: Tennelec M-2221 | Serial #: 64052 172051 | Cal. Due: 4/16/2004 4/2/2004 | Probe Area: n/a 43-68 126 | Serial #: n/a 116718 | Cal. Due: n/a 4/2/2004 | β Eff. n/a 0.109 | Max β Bkg Lc n/a 391 |
| Survey Unit 17 Final Status Survey Addendum 004 | Reviewed By: Frank Myers | Date: 07/29/03 | M-2221 | 157031 | 3/17/2004 | 44-10 n/a | 155202 | 3/17/2004 | n/a | |
| | | | M-2221 | 103942 | 3/27/2004 | 43-37 430 | 149715 | 3/27/2004 | 0.114 | |

Key: ○ = Smear xxx to xxx = Direct Fnsk △ = air sample B = beta dose rate in mRad/hr -X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | | Static Count β | | | | Coordinates | | | | |
|--------|----------|---|------------------------|--|----------------|---------------|-----|-------|-------------|-------|------|-----------|------|
| No. | α | β | DPM/100cm ² | | No. | Unsh/Shielded | Net | Lc | No. | North | East | Elevation | |
| 1 | See | | | | 1 | 448 | 341 | 779 | 313 | 1 | 0 | 0 | 1.5 |
| 2 | Attached | | | | 2 | 487 | 370 | 852 | 326 | 2 | 0 | 3 | 1.5 |
| 3 | Report | | | | 3 | 514 | 362 | 1,107 | 323 | 3 | 0 | 6 | 1.5 |
| 4 | | | | | 4 | 398 | 340 | 422 | 313 | 4 | 1 | 1.5 | 0 |
| 5 | | | | | 5 | 449 | 372 | 561 | 327 | 5 | 1 | 4.5 | 0 |
| 6 | | | | | 6 | 722 | 532 | 1,383 | 391 | 6 | 1 | 7.5 | 0 |
| 7 | | | | | 7 | 387 | 254 | 968 | 270 | 7 | 3.5 | 0 | 0 |
| 8 | | | | | 8 | 345 | 289 | 408 | 288 | 8 | 3.5 | 3 | 0 |
| 9 | | | | | 9 | 323 | 253 | 510 | 270 | 9 | 3.5 | 6 | 0 |
| 10 | | | | | 10 | 152 | 166 | -102 | 219 | 10 | 3.5 | 7.9 | 1 |
| 11 | | | | | 11 | 325 | 231 | 684 | 258 | 11 | 6 | 1.5 | 0 |
| 12 | | | | | 12 | 285 | 260 | 182 | 274 | 12 | 6 | 4.5 | 0 |
| 13 | | | | | 13 | 310 | 232 | 568 | 258 | 13 | 6 | 7.5 | 0 |
| 14 | | | | | 14 | 380 | 288 | 670 | 288 | 14 | 7.1 | 0 | 1.5 |
| 15 | | | | | 15 | 436 | 243 | 1,405 | 264 | 15 | 8.5 | 3 | 0 |
| 16 | | | | | 16 | 360 | 254 | 772 | 270 | 16 | 8.5 | 6 | 0 |
| 17 | | | | | 17 | 275 | 187 | 641 | 232 | 17 | 8.5 | 7.9 | 1 |
| 18 | | | | | 18 | 319 | 211 | 786 | 246 | 18 | 10.3 | 3.5 | 0.75 |
| QC | | | | | QC | 320 | 229 | 663 | 257 | QC | 10.3 | 3.5 | 0.75 |

Room G020 East Wall 1 meter grid

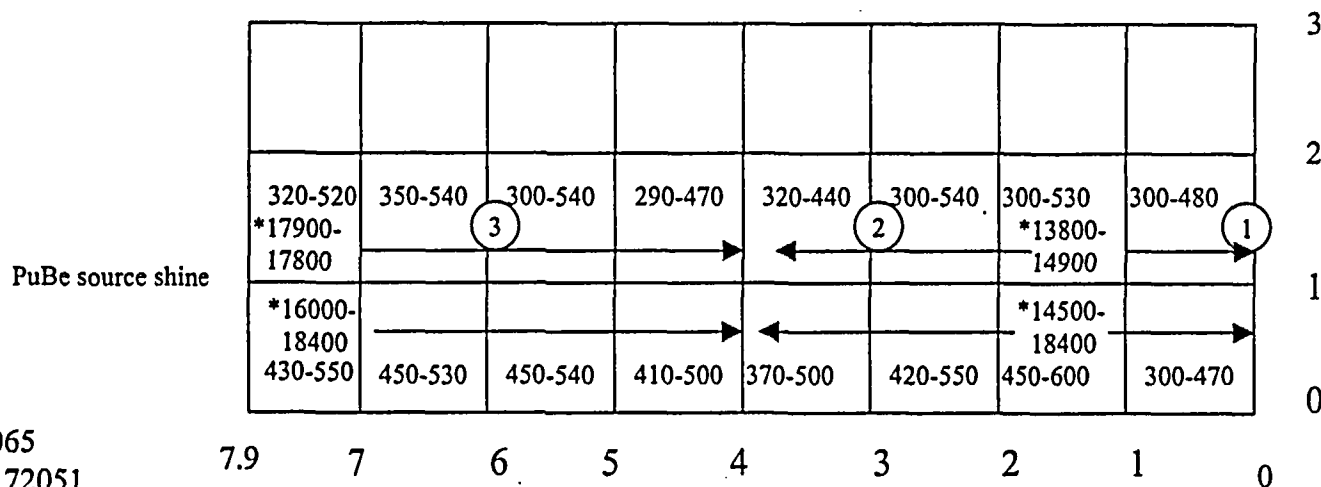
E = 21.9



Survey # UVA-FS-065
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-25-03
 Beta and Gamma scans
 Readings in CPM
 O denotes smear and static count
 () denotes.

Room G020A South Wall East 1 meter grid

N = 0



Survey # UVA-FS-065

Meter # L2221 172051

Probe # 43-68 116718

Meter # L2221 *157031

Probe # 44-10 *155202

Date 7-25-03

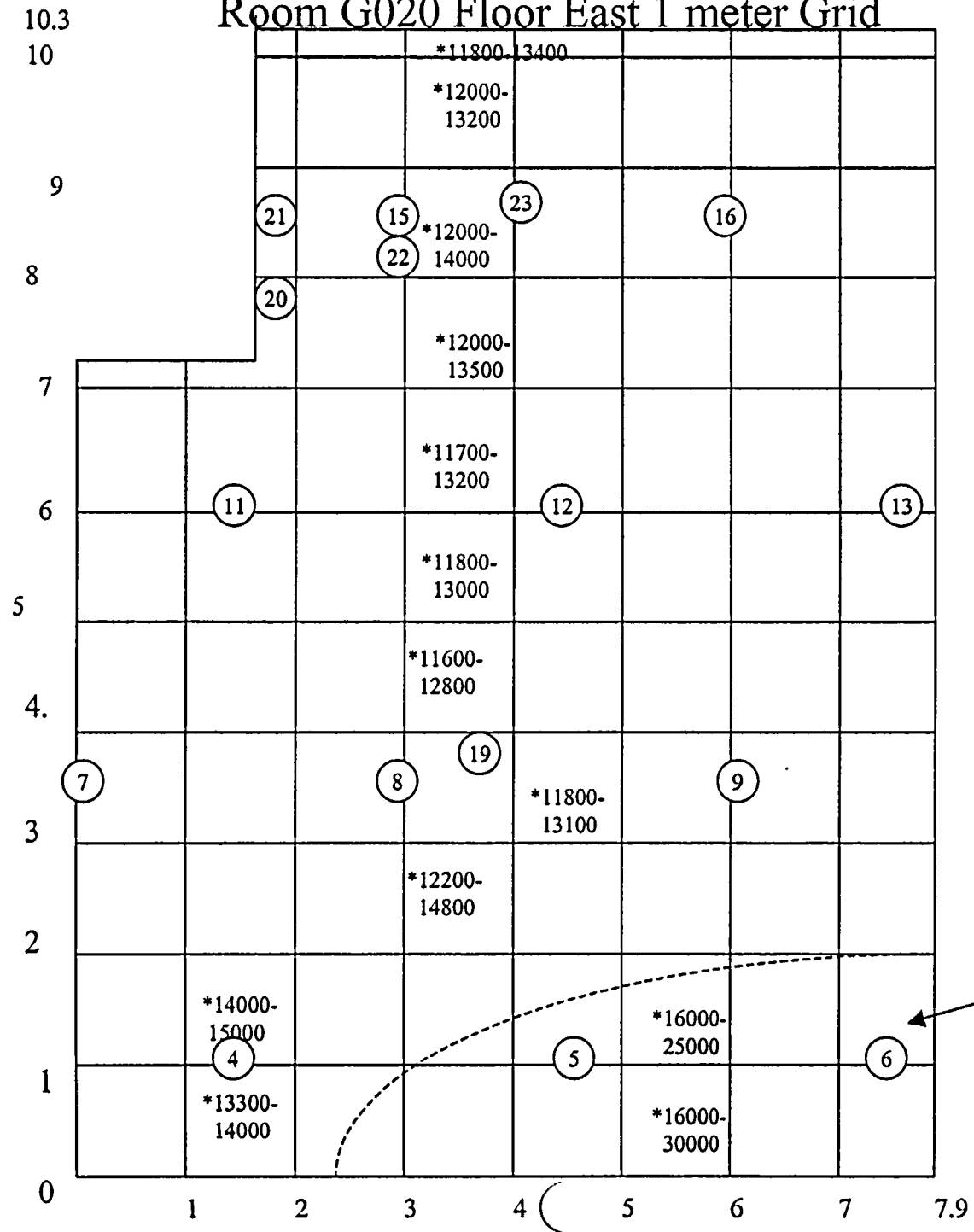
Beta and Gamma scans

Readings in CPM

O denotes smear and static count locations.

Room G020 Floor East 1 meter Grid

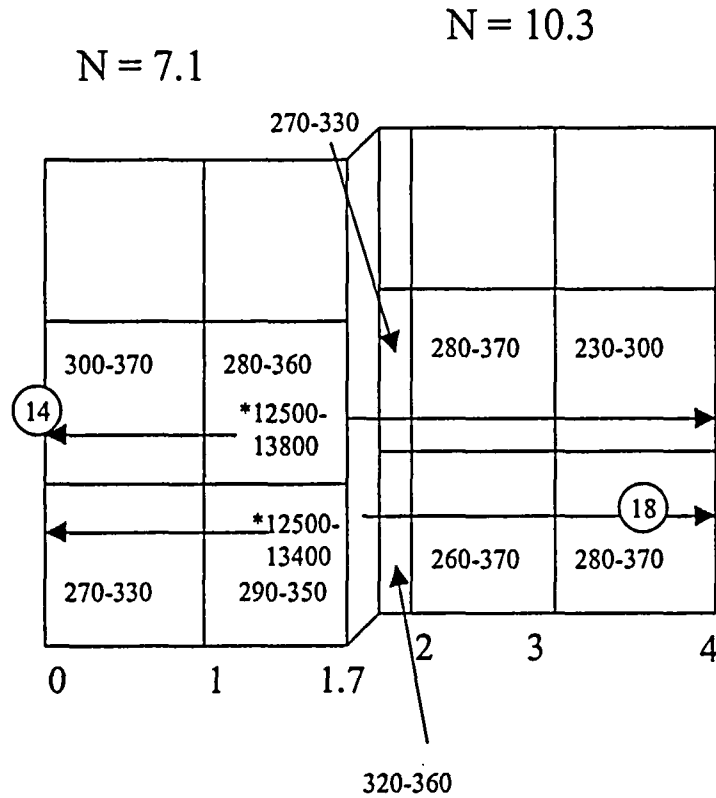
Z=0



Survey #UVA-FS-065
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-25-03
 Beta and gamma scans
 Readings in CPM
 O denotes smear and
 Static count locations.

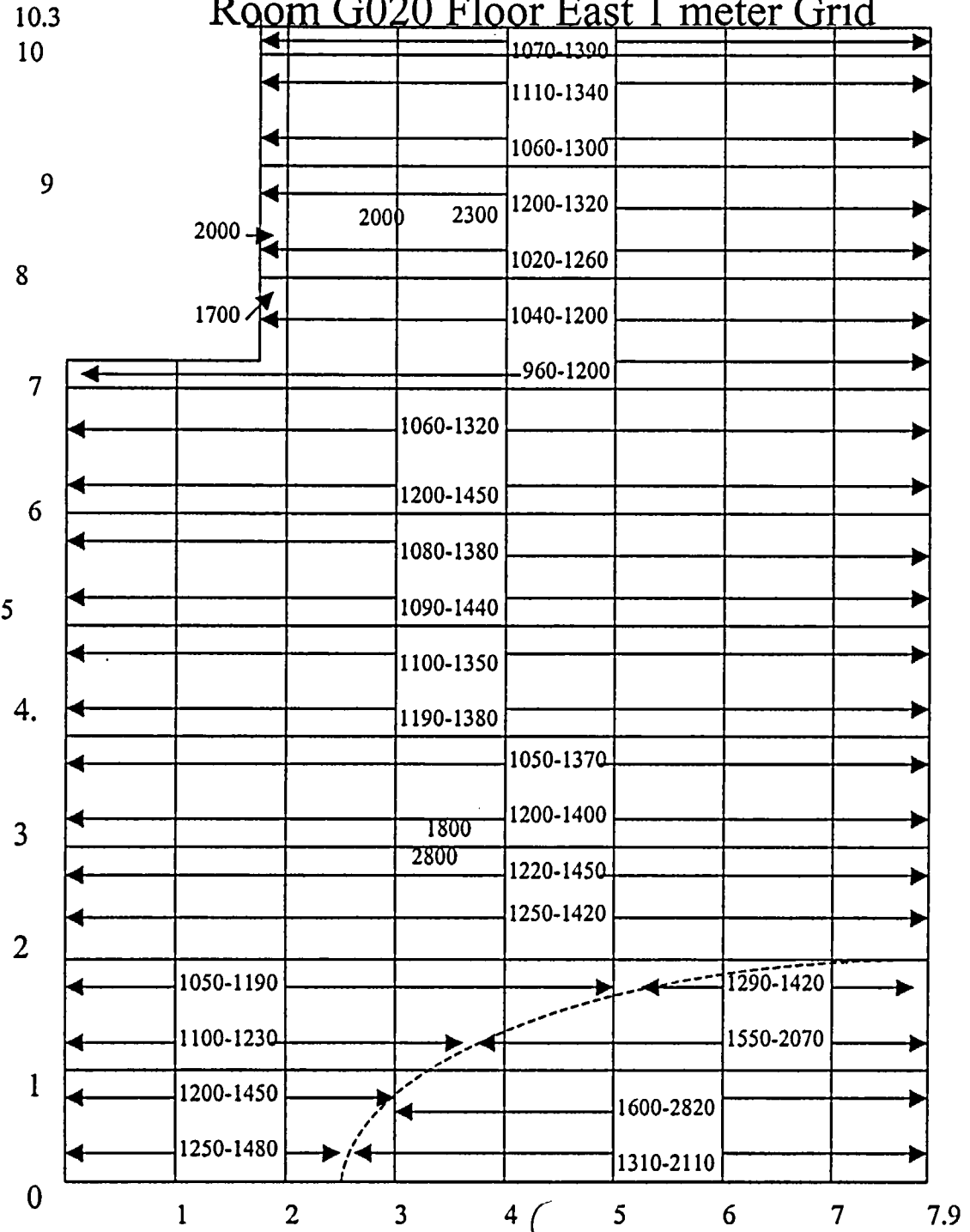
Shine Boundary

Room G020 North wall East 1 meter grid



Survey # UVA-FS-065
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-25-03
 Beta and Gamma scans
 Readings in CPM
 O denotes smear and static count
 locations.

Room G020 Floor East 1 meter Grid



Z= 0

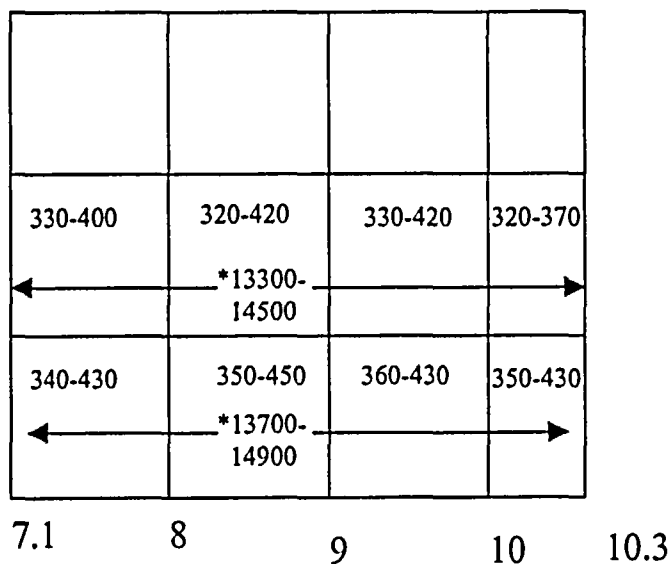
Survey # UVA-FS-065
 Meter # L2221 103942
 Probe # 43-37 149715
 Date 7-24-03
 Beta Scans
 Readings in CPM

Shine Boundary

Room G020 West Wall East 1 meter grid

E = 15.7

→ N



Survey # UVA-FS-065
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-25-03
 Beta and Gamma Scans
 Readings in CPM



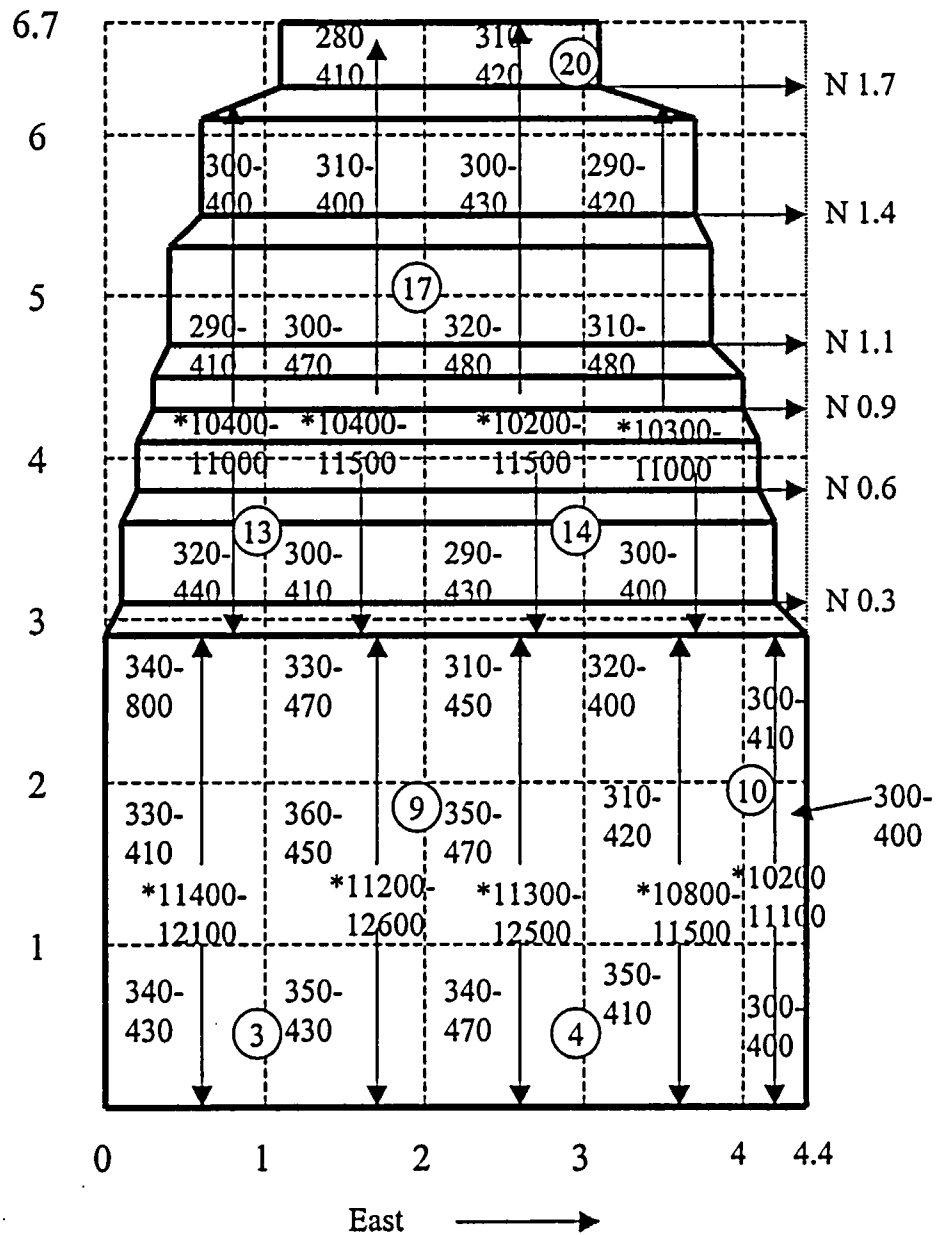
**UVAP
Radiological Survey Form**

| | | | | | | | | | | |
|---|---|--|---|--|--|--|--|--|--------------------------------------|--------------------------------|
| Location: Nuclear Reactor Inside | RWP/WP | Survey # UVA-FS-066 | Survey Type: Final Status Survey | Page 1 of 4 | | | | | | |
| Comments: Final Status Survey of Blowall Class 1 Survey Unit 11 Final Status Survey Addendum 004 | Surveyed By: Alice Thompson Brad Myers Reviewed By: Frank Myers | Date: 07/28/03 07/28/03 07/07/03 07/29/03 | Instrument Tennelec M-2221 M-2221 | Serial # 64052 103942 184010 | Cal. Due 4/16/2004 3/27/2004 3/24/2004 | Probe Area n/a 43-68 126 44-10 | Serial # n/a 160790 150873 | Cal. Due n/a 3/27/2004 3/24/2004 | β Eff. n/a 0.109 n/a | Max β Bkg Lc 350 |

Key: ○ = Smear xxx to xxx = Direct Fmsh △ = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | Static Count β | | | | Coordinates | | | | | |
|--------|-----------|---|------------------------|----------------|-----|---------------|-----|------------------------|-----|-----|-------|------|-----------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded | | DPM/100cm ² | | No. | North | East | Elevation |
| | α | β | α | β | | CPM | Net | Lc | | | | | |
| 1 | See | | | | 1 | 414 | 323 | 663 | 305 | 1 | 2 | -3 | 0.5 |
| 2 | Attached | | | | 2 | 330 | 246 | 612 | 266 | 2 | 1 | -1 | 0.5 |
| 3 | Report | | | | 3 | 404 | 293 | 808 | 290 | 3 | 0 | 1 | 0.5 |
| 4 | | | | | 4 | 390 | 349 | 299 | 317 | 4 | 0 | 3 | 0.5 |
| 5 | | | | | 5 | 236 | 221 | 109 | 252 | 5 | 0.5 | 5 | 0.5 |
| 6 | | | | | 6 | 379 | 321 | 422 | 304 | 6 | 2 | 7 | 0.5 |
| 7 | | | | | 7 | 442 | 287 | 1,129 | 287 | 7 | 1.5 | -2 | 2 |
| 8 | | | | | 8 | 407 | 295 | 815 | 291 | 8 | 0 | 0 | 2 |
| 9 | | | | | 9 | 490 | 288 | 1,471 | 288 | 9 | 0 | 2 | 2 |
| 10 | | | | | 10 | 413 | 331 | 597 | 309 | 10 | 0 | 4 | 2 |
| 11 | | | | | 11 | 197 | 235 | -277 | 260 | 11 | 1.5 | 6 | 2 |
| 12 | | | | | 12 | 454 | 408 | 335 | 343 | 12 | 1.3 | -1 | 3.5 |
| 13 | | | | | 13 | 472 | 401 | 517 | 340 | 13 | 0.3 | 1 | 3.5 |
| 14 | | | | | 14 | 504 | 359 | 1,056 | 321 | 14 | 0.3 | 3 | 3.5 |
| 15 | | | | | 15 | 395 | 391 | 29 | 335 | 15 | 0.8 | 5 | 3.5 |
| 16 | | | | | 16 | 383 | 311 | 524 | 299 | 16 | 1.1 | 0 | 5 |
| 17 | | | | | 17 | 373 | 308 | 473 | 298 | 17 | 1.1 | 2 | 5 |
| 18 | | | | | 18 | 358 | 336 | 160 | 311 | 18 | 1.1 | 4 | 5 |
| 19 | | | | | 19 | 491 | 325 | 1,209 | 306 | 19 | 1.8 | 1 | 6.5 |
| 20 | | | | | 20 | 439 | 393 | 335 | 336 | 20 | 1.7 | 3 | 6.5 |
| 21 | | | | | 21 | 441 | 404 | 269 | 341 | 21 | 3.8 | 5 | 6.5 |
| QC | | | | | QC | 443 | 426 | 124 | 350 | QC | 3.8 | 5 | 6.5 |

Bioshield Wall Center 1 meter grid



Survey # UVA-FS-066

Meter # L2221 103942

Probe # 43-68 160790

Meter # L2221 *184010

Probe # 44-10 *150873

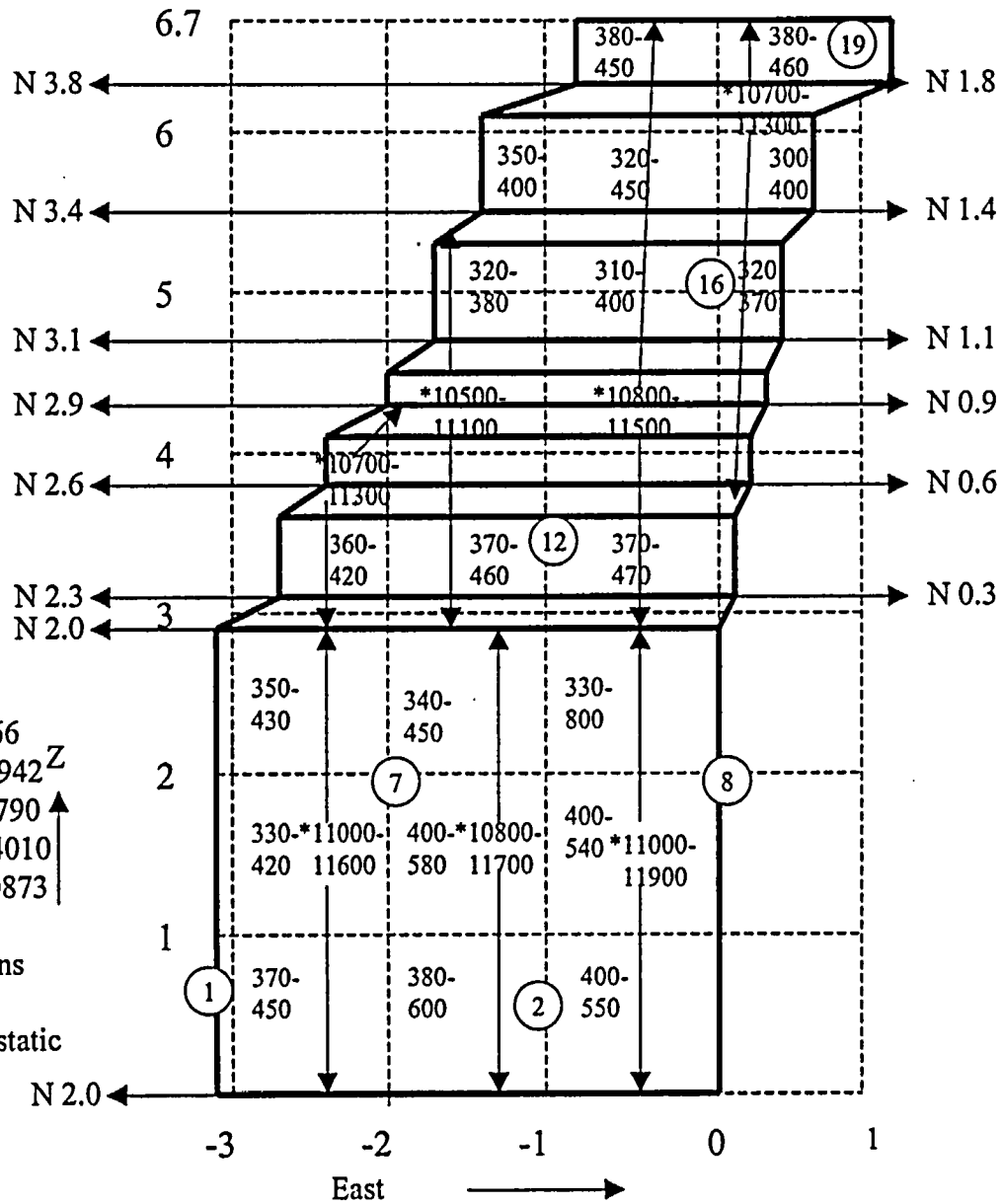
Date 72803

Beta and Gamma Scans

Readings in CPM

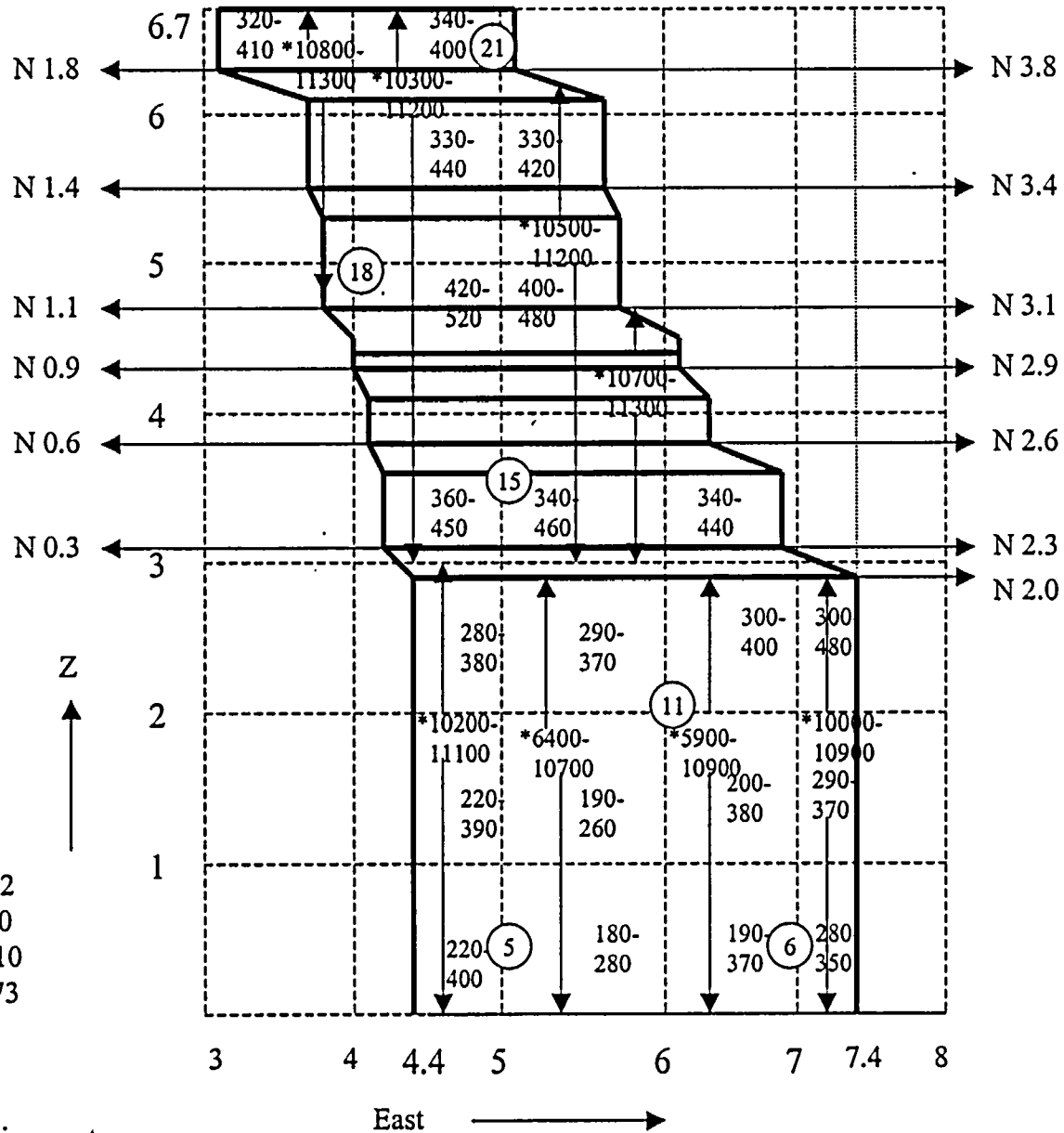
O denotes smear and static count locations.

Bioshield Wall West 1 meter grid



Survey # UVA-FS-066
 Meter # L2221 103942 \uparrow
 Probe # 43-68 160790 \uparrow
 Meter # L2221 *184010 \uparrow
 Probe # 44-10 *150873 \uparrow
 Date 7-28-03
 Beta and Gamma scans
 Readings in CPM
 P denotes smear and static
 count locations.

Bioshield Wall East 1 meter grid



Survey # UVA-FS-066
 Meter # L2221 103942
 Probe # 43-68 160790
 Meter # L2221 *184010
 Probe # 44-10 *150873
 Date 7-28-03
 Beta and Gamma scans
 Readings in CPM
 O denotes smear and static count locations.



**UVAP
Radiological Survey Form**

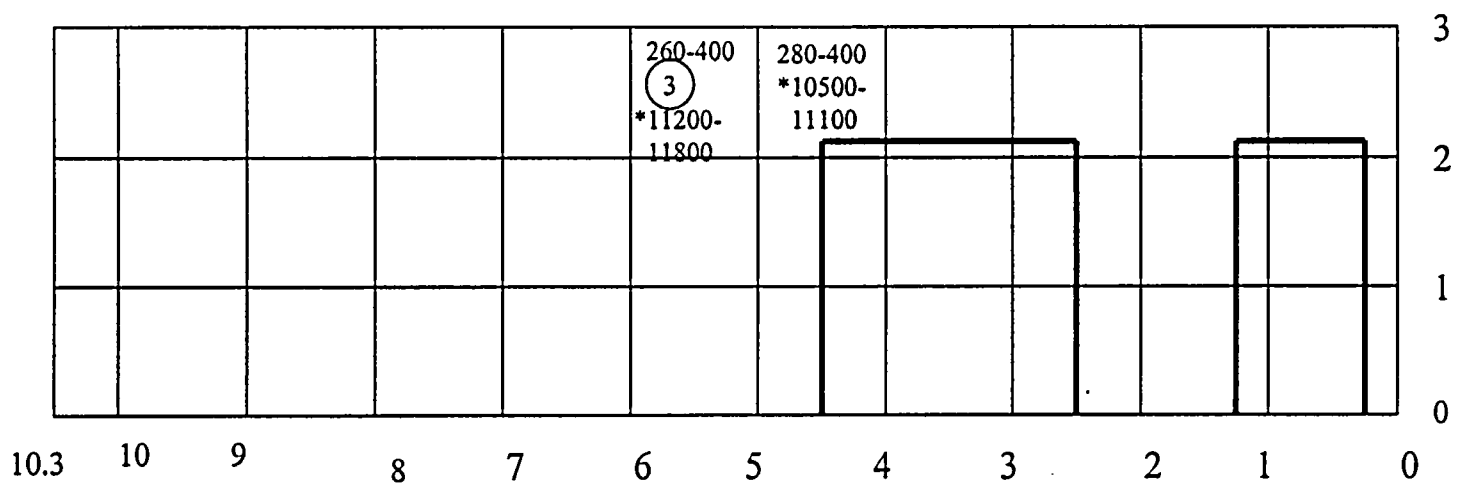
| | | | | | | | | | | | |
|--|--|---|--------------------------------------|---|------------------------------------|---|---|----------------------------------|------------------------------------|-------------------------------|----------------------------|
| Location: Nuclear Reactor Inside | | RWP/WP | Survey # UVA-FS-067 | | | Survey Type: Final Status Survey | | | | Page 1 of 12 | |
| Comments: Final Status Survey of Room G020 upper walls and ceiling Class 3 | | Surveyed By: Alice Thompson Jason Strand | Date: 08/04/03 07/26/03 | Instrument Tennelec M-2221 | Serial # 64052 172051 | Cal. Due 4/18/2004 4/2/2004 | Probe Area n/a n/a 43-68 126 | Serial # n/a 116718 | Cal. Due n/a 4/2/2003 | β Eff. n/a 0.107 | Max β Bkg Lc 324 |
| Survey Unit 55 Final Status Survey Addendum 004 | | Reviewed By: Frank Myers | Date: 08/04/03 | Instrument M-2221 | Serial # 157031 | Cal. Due 3/17/2004 | Probe Area 44-10 n/a | Serial # 155202 | Cal. Due 3/17/2004 | β Eff. n/a | |

Key: ○ = Smear xxx to xxx = Direct Fnsk Δ = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | Static Count β | | | | Coordinates | | | | |
|--------|----------|---|------------|----------------|-------------------|-----|-------|-------------|-------|------|-----------|-----|
| No. | α | β | DPM/100cm² | No. | Unsh/Shielded CPM | Net | Lc | No. | North | East | Elevation | |
| 1 | See | | | 1 | 367 | 290 | 571 | 294 | 1 | 9.75 | 1.7 | 2.3 |
| 2 | Attached | | | 2 | 409 | 278 | 972 | 288 | 2 | 7.1 | 0.7 | 2.3 |
| 3 | Report | | | 3 | 332 | 230 | 757 | 262 | 3 | 5.9 | 7.9 | 2.6 |
| 4 | | | | 4 | 288 | 213 | 556 | 252 | 4 | 0 | 0.5 | 2.4 |
| 5 | | | | 5 | 298 | 287 | 82 | 293 | 5 | 0 | 5.5 | 2.4 |
| 6 | | | | 6 | 391 | 352 | 289 | 324 | 6 | 5.5 | 0.4 | 3 |
| 7 | | | | 7 | 503 | 344 | 1,179 | 321 | 7 | 8.5 | 3.5 | 3 |
| 8 | | | | 8 | 400 | 328 | 534 | 313 | 8 | 3.2 | 3.5 | 3 |
| 9 | | | | 9 | 264 | 228 | 282 | 260 | 9 | 0 | 0.9 | 2.2 |
| 10 | | | | 10 | 380 | 292 | 653 | 295 | 10 | 7.1 | 0.8 | 2.7 |
| 11 | | | | 11 | 238 | 283 | -334 | 291 | 11 | 0 | 5.6 | 2.2 |
| 12 | | | | 12 | 444 | 302 | 1,053 | 300 | 12 | 0 | 3.5 | 4.2 |
| 13 | | | | 13 | 372 | 324 | 356 | 311 | 13 | 0 | 6.8 | 2.7 |
| 14 | | | | 14 | 459 | 320 | 1,031 | 309 | 14 | 7.1 | 6.8 | 2.7 |
| 15 | | | | 15 | 338 | 214 | 920 | 253 | 15 | 8.3 | 2.5 | 6.5 |
| 16 | | | | 16 | 340 | 222 | 875 | 258 | 16 | 7.1 | 3.5 | 6.8 |
| 17 | | | | 17 | 229 | 174 | 408 | 228 | 17 | 5.8 | 5.5 | 6.8 |
| QC | | | | QC | 201 | 148 | 393 | 210 | QC | 5.6 | 5.5 | 6.8 |
| | | | | | | | | | | | | |
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Room G020 East Wall 1 meter grid

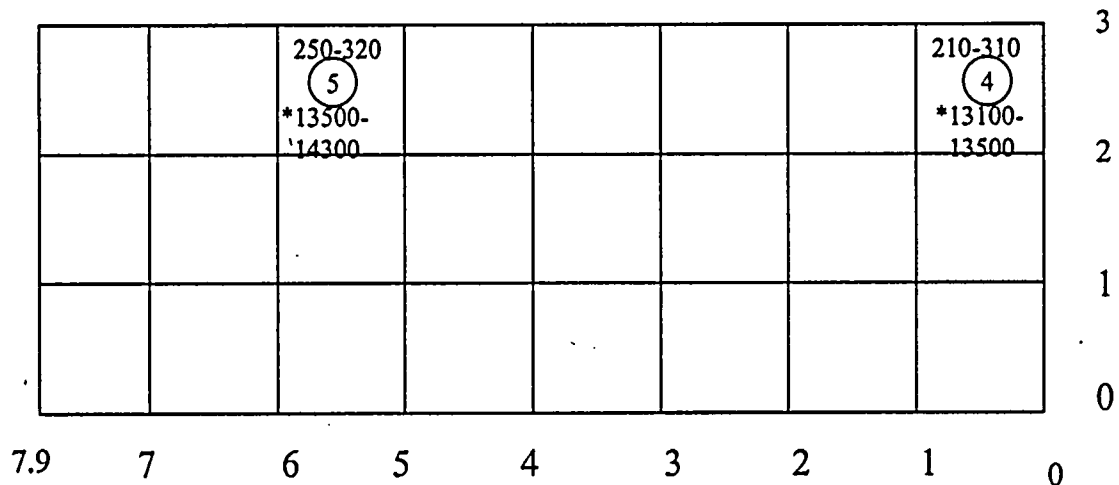
E = 21.9



Survey # UVA-FS-067
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-26-03
 Beta and Gamma scans
 Readings in CPM
 O denotes smear and static count
 locations.

Room G020A South Wall East 1 meter grid

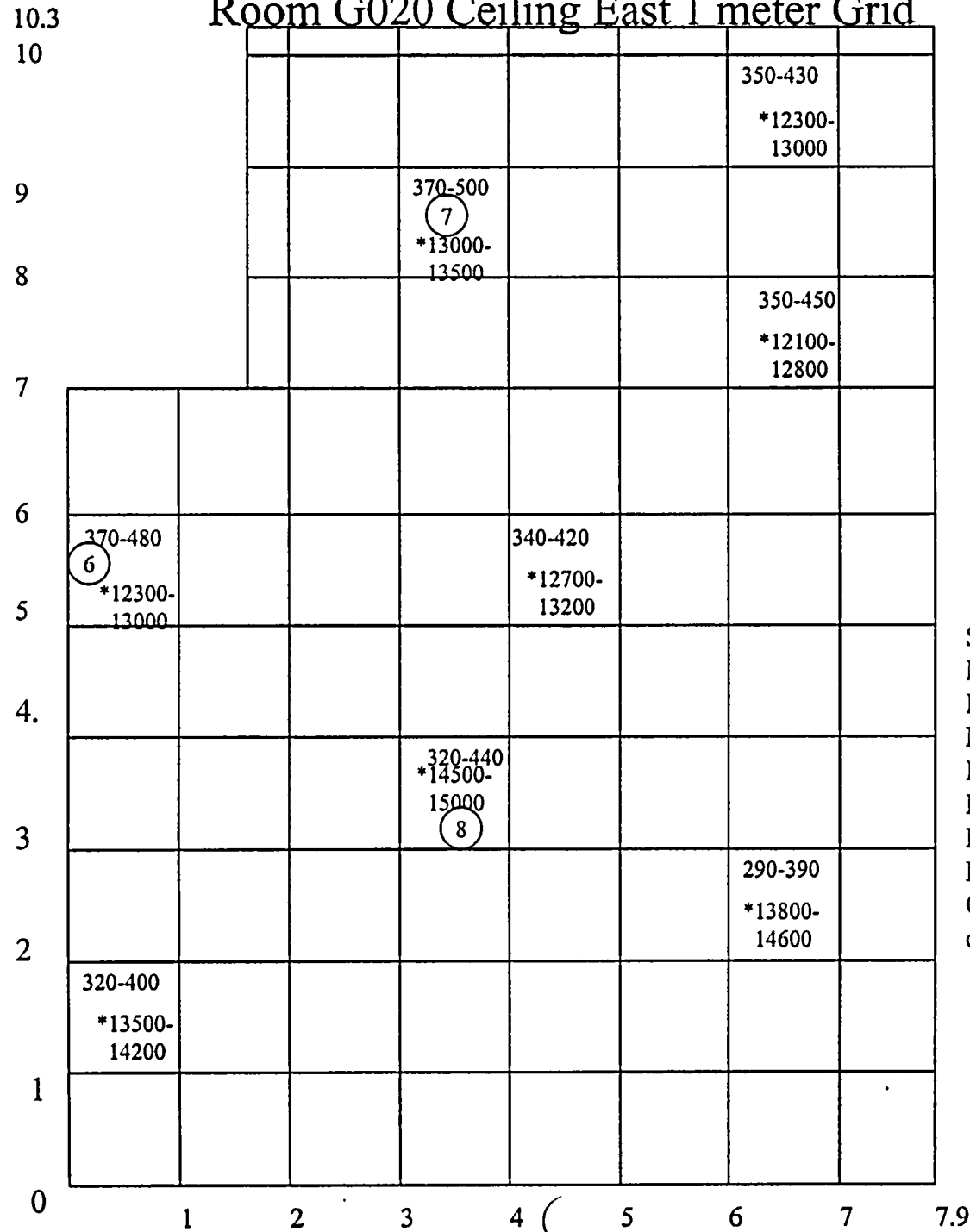
N = 0



Survey # UVA-FS-067
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-26-03
 Beta and Gamma scans
 Readings in CPM
 O denotes smear and static count locations.

Room G020 Ceiling East 1 meter Grid

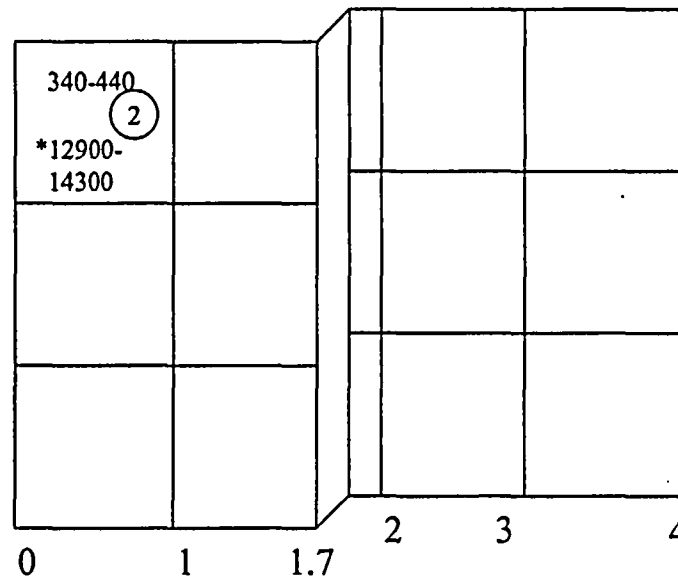
Z= 3



Survey # UVA-FS-067
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7 -26-03
 Beta and gamma scans
 Readings in CPM
 O denotes smear and static
 count locations.

Room G020 North wall East 1 meter grid

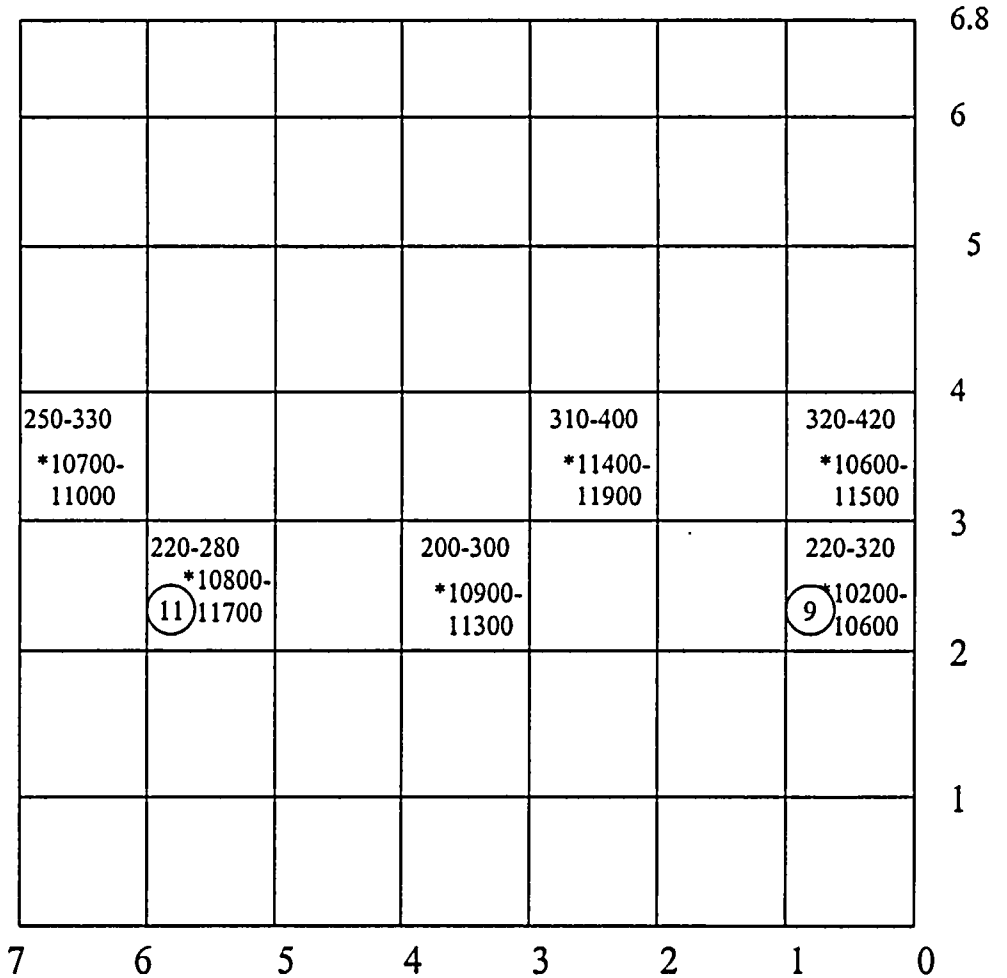
N = 10.3



Survey # UVA-FS-067
Meter # L2221 172051
Probe # 43-68 116718
Meter # L2221 *157031
Probe # 44-10 *155202
Date 7-26-03
Beta and Gamma scans
Readings in CPM
O denotes smear and static count
locations.

Room G020 South Wall west 1 meter grid

N = 0



Survey # UVA-FS-067

Meter # L2221 172051

Probe # 43-68 116718

Meter # L2221 *157031

Probe # 44-10 *155202

Date 7-26-03

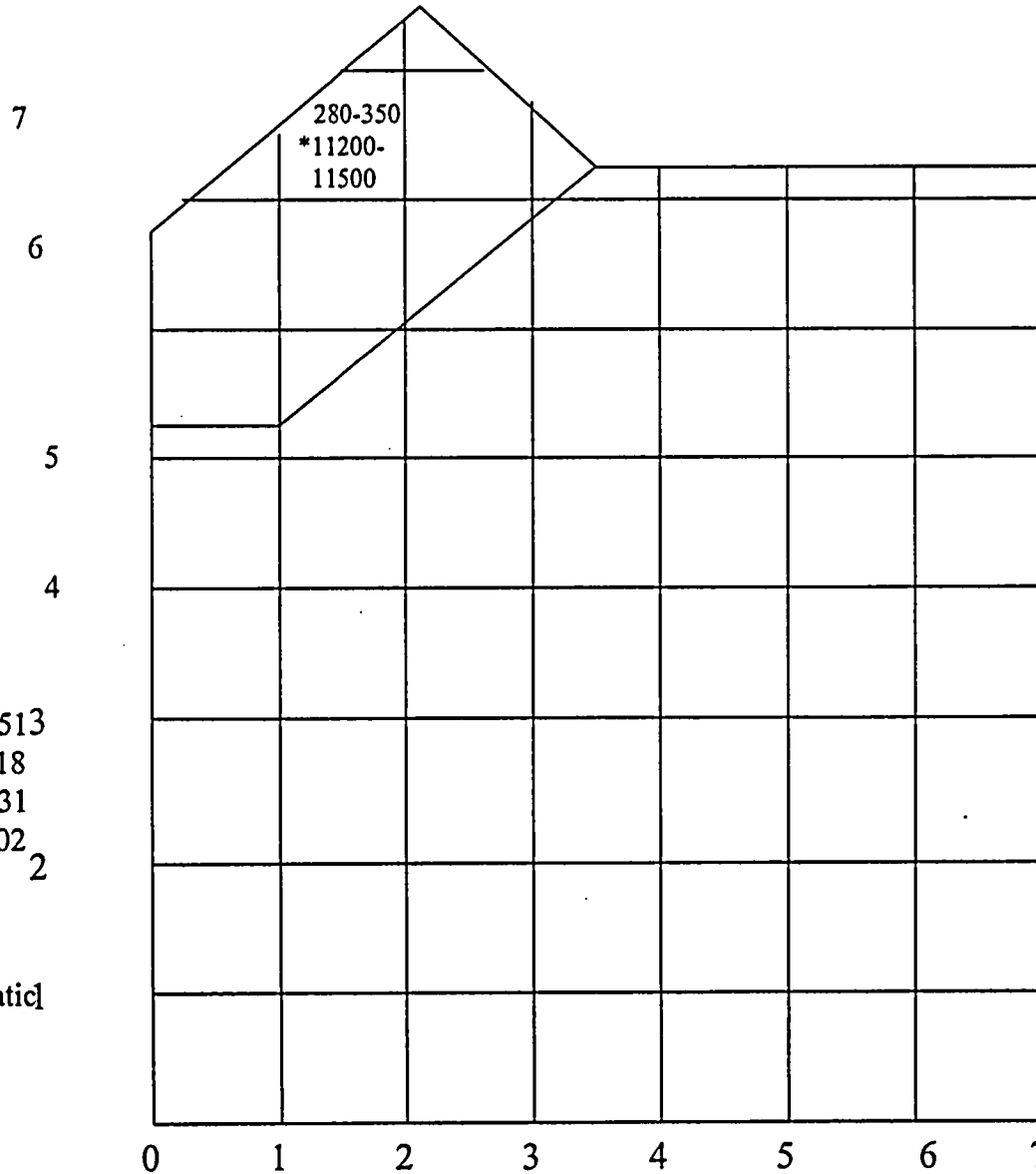
Beta and gamma scans

Readings in CPM

O denotes smear and static count locations.

Room G020 Ceiling Center 1 meter grid6.8

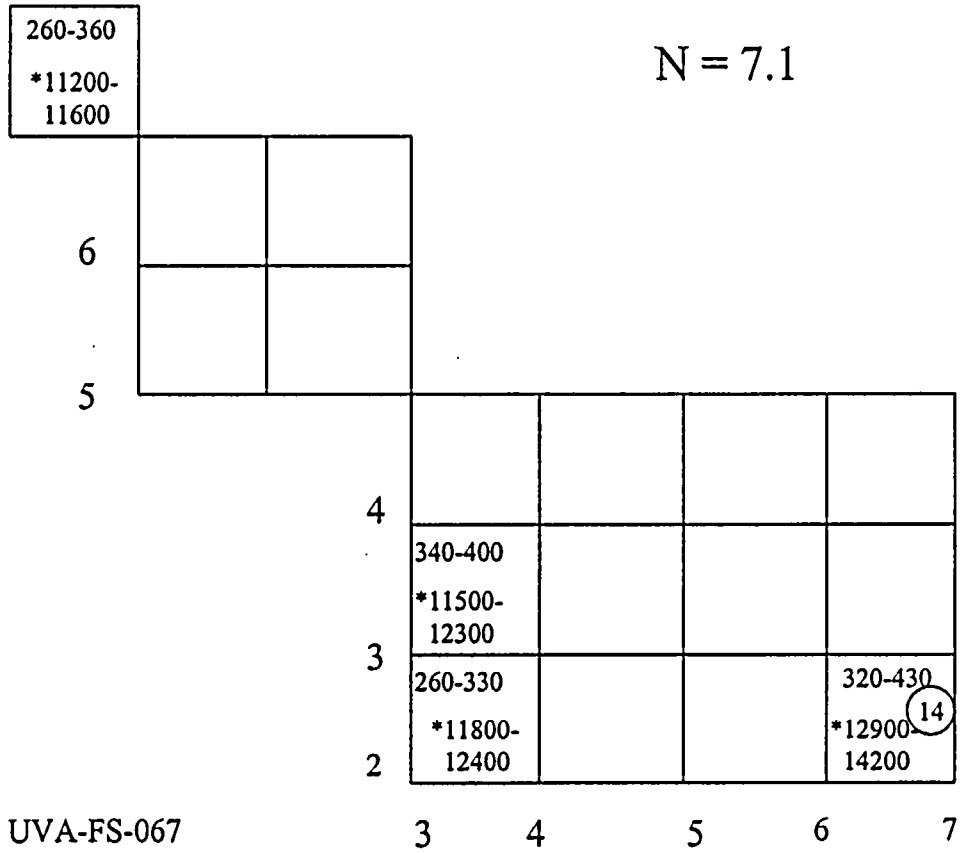
Z = 6.8



Survey # UVA-FS-067
Meter # L2221 1720513
Probe # 43-68 116718
Meter # L2221 *157031
Probe # 44-10 *155202
Date 7-26-03
Beta and gamma scans
Readings in CPM
O denotes smear and static
Count locations.

Room G020 North Wall Center 1 meter grid

6.8



Survey # UVA-FS-067

Meter # L2221 172051

Probe # 43-68 116718

Meter # L2221 *157031

Probe # 44-10 *155202

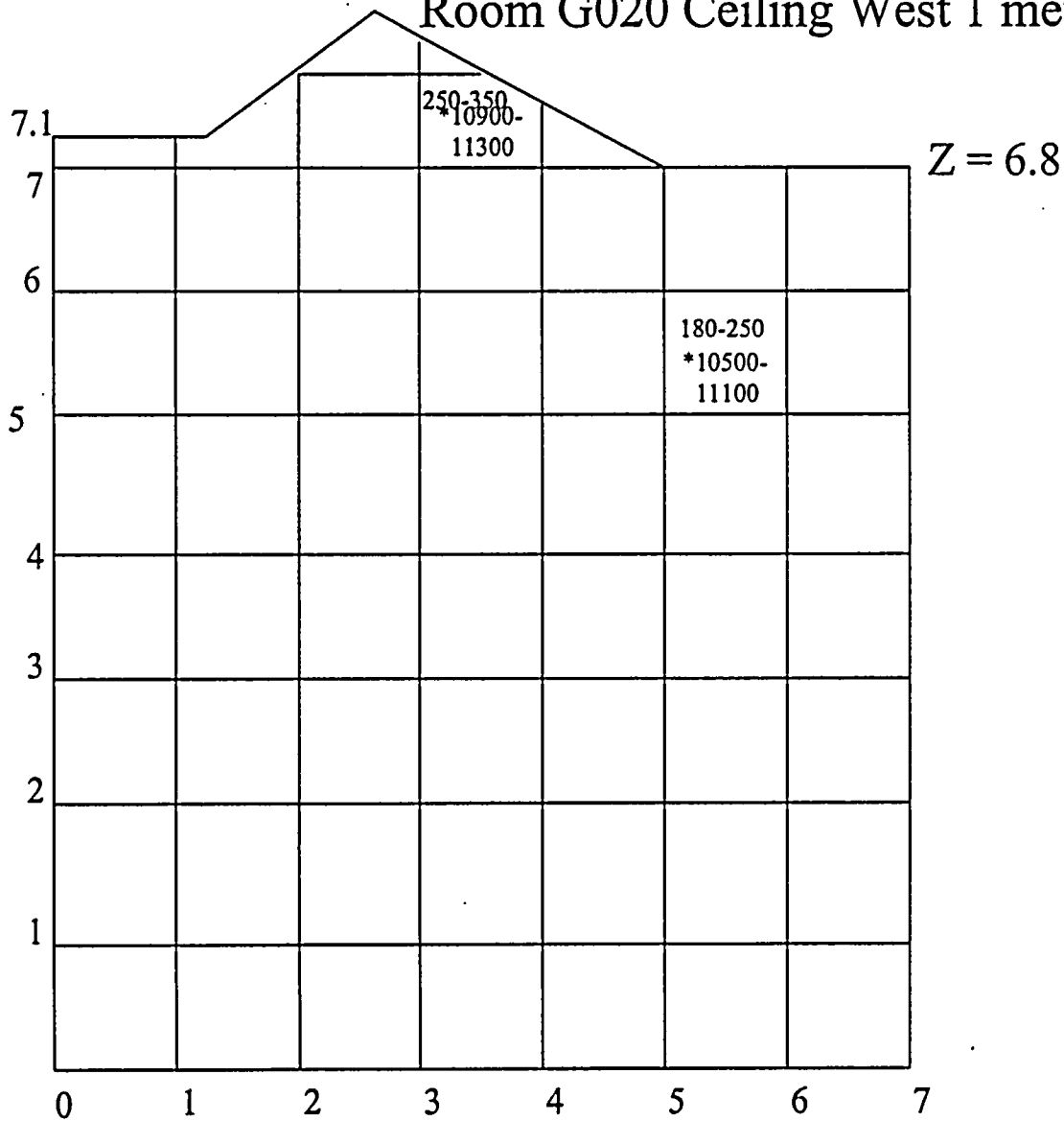
Date 7-26-03

Beta and Gamma Scans

Readings in CPM

O denotes smear and static count location.

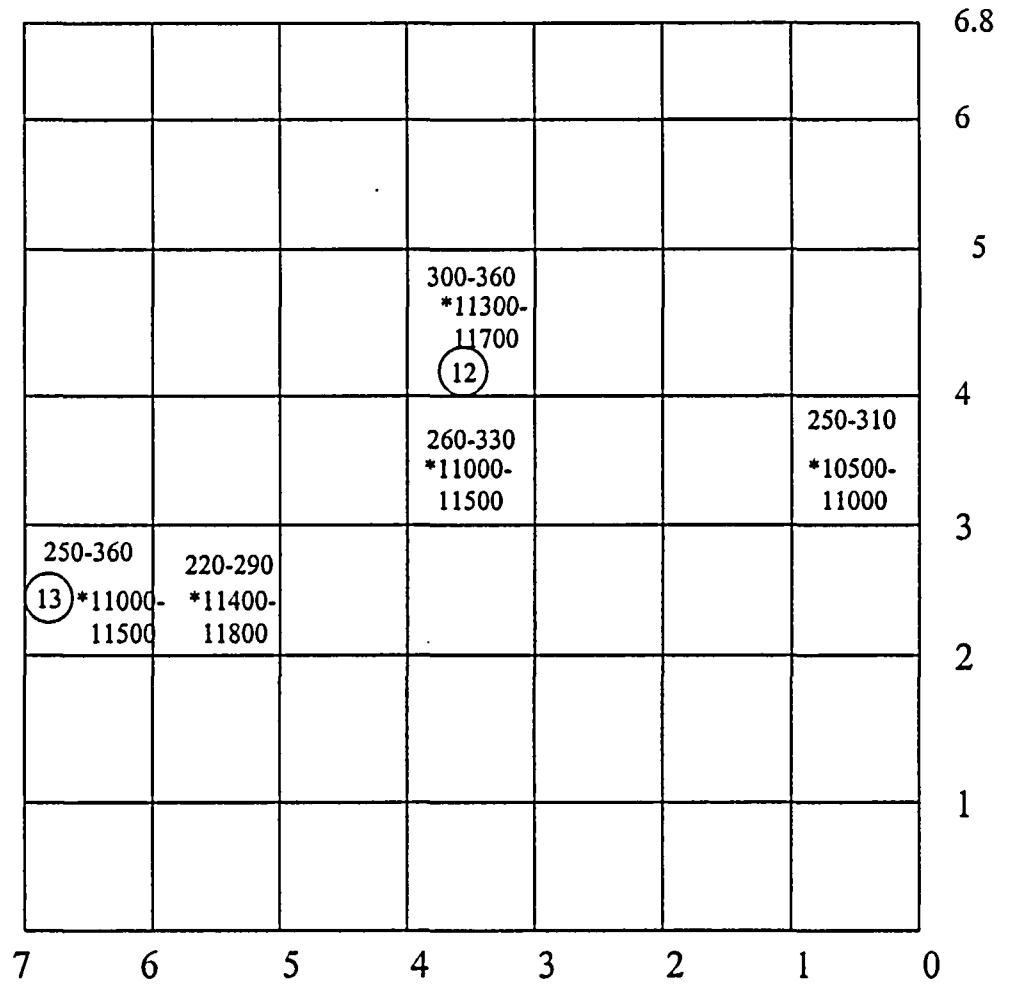
Room G020 Ceiling West 1 meter grid



Survey #UVA-FS-067
 Meter #L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-26-03
 Beta and gamma scans
 Readings in CPM
 O denotes smear and static
 count locations.

Room G020 South Wall Center 1 meter grid

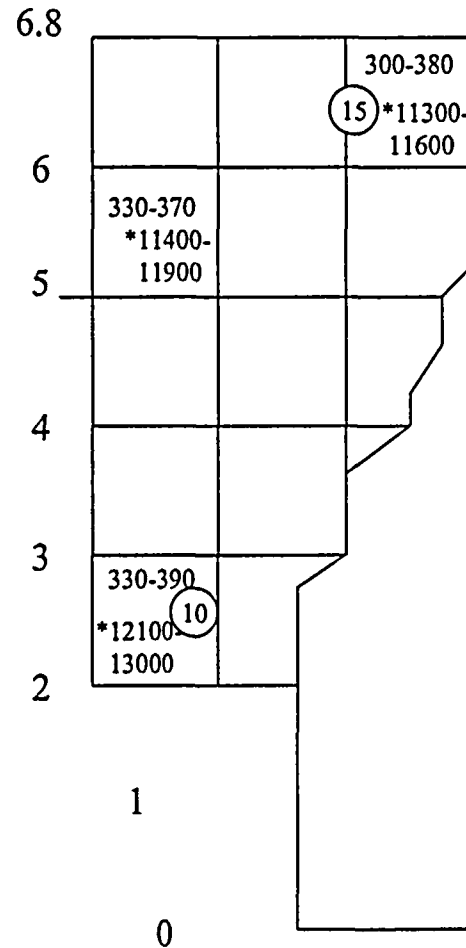
N = 0



Survey #UVA-FS-067
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-26-03
 Beta and gamma scans
 Readings in CPM
 O denotes smear and static count locations.

Room G020 North wall West 1 meter grid

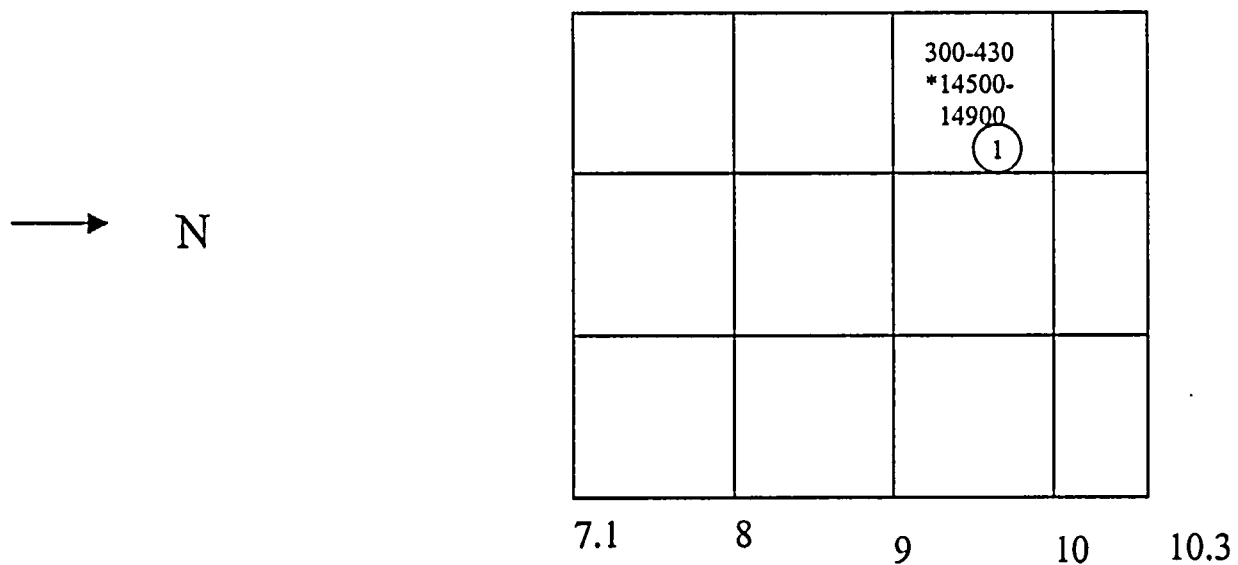
N = 10.3



Survey # UVA-FS-067
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-26-03
 Beta and Gamma scans
 Readings in CPM
 O denotes smear and static
 Count locations.

Room G020 West Wall East 1 meter grid

E = 15.7



Survey # UVA-FS-067

Meter # L2221 172051

Probe # 43-68 116718

Meter # L2221 *157031

Probe # 44-10 *155202

Date 7-26-03

Beta and gamma scans

Readings in CPM

O denotes smear and static count locations.



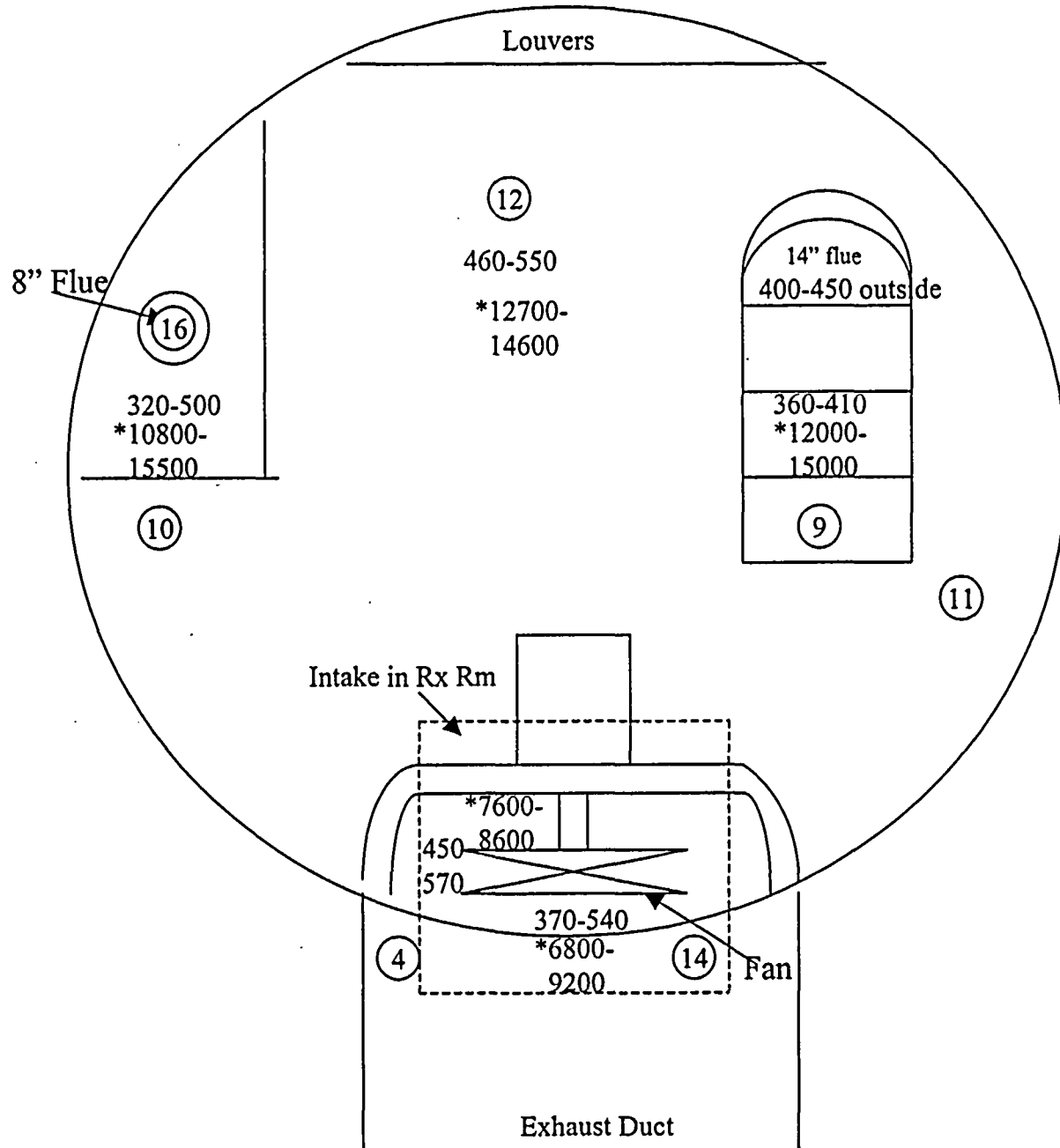
UVAP
Radiological Survey Form

| | | | | | |
|--|--|------------------------------------|----------------------------|---|----------------------------|
| Location: Nuclear Reactor Facility outside | | RWP/WP | Survey # UVA-FS-068 | Survey Type: Final Status Survey | Page 1 of 3 |
| Comments: | | Surveyed By: Alice Thompson | Date: 08/04/03 | Instrument: Tennelec | Serial #: 64052 |
| Final Status Survey of Reactor stack ventilation and Plenum, Class 1 | | Jason Strand | 07/26/03 | M-2221 | 172051 |
| Survey Unit 24 | | Brad Myers | 07/26/03 | M-2221 | 157031 |
| Final Status Survey Addendum 008 | | Reviewed By: Frank Myers | Date: 08/04/03 | | |
| | | | | Cal. Due: 4/16/2004 | Probe Area: n/a n/a |
| | | | | Serial #: n/a | Cal. Due: n/a |
| | | | | 43-68 | 126 |
| | | | | 116718 | 4/2/2003 |
| | | | | 155202 | 3/17/2004 |
| | | | | 0.107 | |
| | | | | n/a | |
| | | | | | Max β Bkg Lc |
| | | | | | 359 |

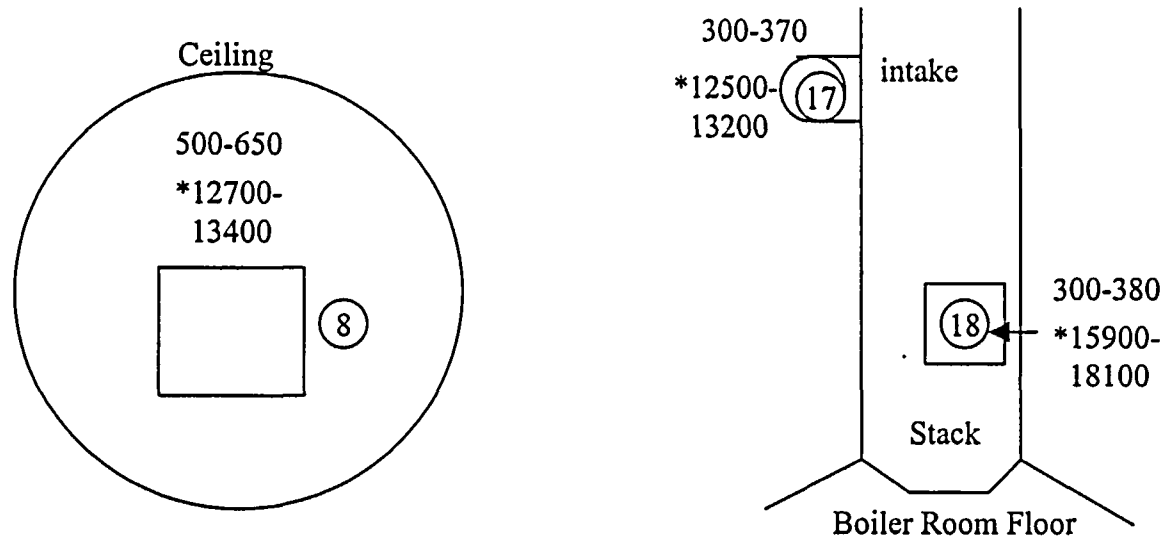
Key: ○ = Smear xxx b xxx = Direct Fnst △ = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rat

| Smears | | | | | Static Count β | | | | Coordinates | | | | |
|--------|-----------|---|------------------------|---|----------------|---------------|-----|------------------------|-------------|-----|-------|------|----------------------------------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded | | DPM/100cm ² | | No. | North | East | Elevation |
| | α | β | α | β | | CPM | Net | Lc | | | | | |
| 1 | See | | | | 1 | 529 | 374 | 1,150 | 334 | 1 | | | |
| 2 | Attached | | | | 2 | 564 | 347 | 1,610 | 322 | 2 | | | |
| 3 | Report | | | | 3 | 585 | 268 | 2,351 | 283 | 3 | | | on fan blade |
| 4 | | | | | 4 | 386 | 333 | 393 | 315 | 4 | | | in exhaust duct |
| 5 | | | | | 5 | 654 | 432 | 1,647 | 359 | 5 | | | |
| 6 | | | | | 6 | 428 | 343 | 630 | 320 | 6 | | | |
| 7 | | | | | 7 | 530 | 377 | 1,135 | 336 | 7 | | | |
| 8 | | | | | 8 | 517 | 376 | 1,046 | 335 | 8 | | | |
| 9 | | | | | 9 | 469 | 410 | 438 | 350 | 9 | | | inside 14 inch flue |
| 10 | | | | | 10 | 565 | 408 | 1,165 | 349 | 10 | | | |
| 11 | | | | | 11 | 664 | 388 | 2,047 | 340 | 11 | | | |
| 12 | | | | | 12 | 639 | 385 | 1,884 | 339 | 12 | | | |
| 13 | | | | | 13 | 471 | 373 | 727 | 334 | 13 | | | hatch lid |
| 14 | | | | | 14 | 567 | 361 | 1,528 | 328 | 14 | | | bottom of intake duct in Rx room |
| 15 | | | | | 15 | 511 | 340 | 1,268 | 319 | 15 | | | bottom of intake duct in Rx room |
| QC | | | | | QC | 545 | 336 | 1,550 | 317 | QC | | | |
| 16 | | | | | 16 | 441 | 261 | 1,335 | 279 | 16 | | | inside 8 inch flue at top |
| 17 | | | | | 17 | 352 | 278 | 549 | 288 | 17 | | | upper intake |
| 18 | | | | | 18 | 352 | 299 | 393 | 299 | 18 | | | clean out |

Top of stack Inside Plenum



Inside Plenum and Stack 1 meter grid



Plenum walls

Survey # UVA-FS-068
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 7-31-03
 Beta and Gamma scans
 Readings in CPM
 O denotes smear and static count locations.

| South | East fan | North | Wall around 8" flue | West Louvers | | | | | | | | | | |
|---------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|---|---|---|---|----|----|----|----|----|
| 450-570 *13600 14700 ⑤ | 430-520 ③ *11200-13800 | 500-580 *14300-15100 ② | 450-560 *13700-15400 ① | 420-500 ⑦ *13200-14300 | ⑥ 400-460 *12500-14300 | | | | | | | | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |



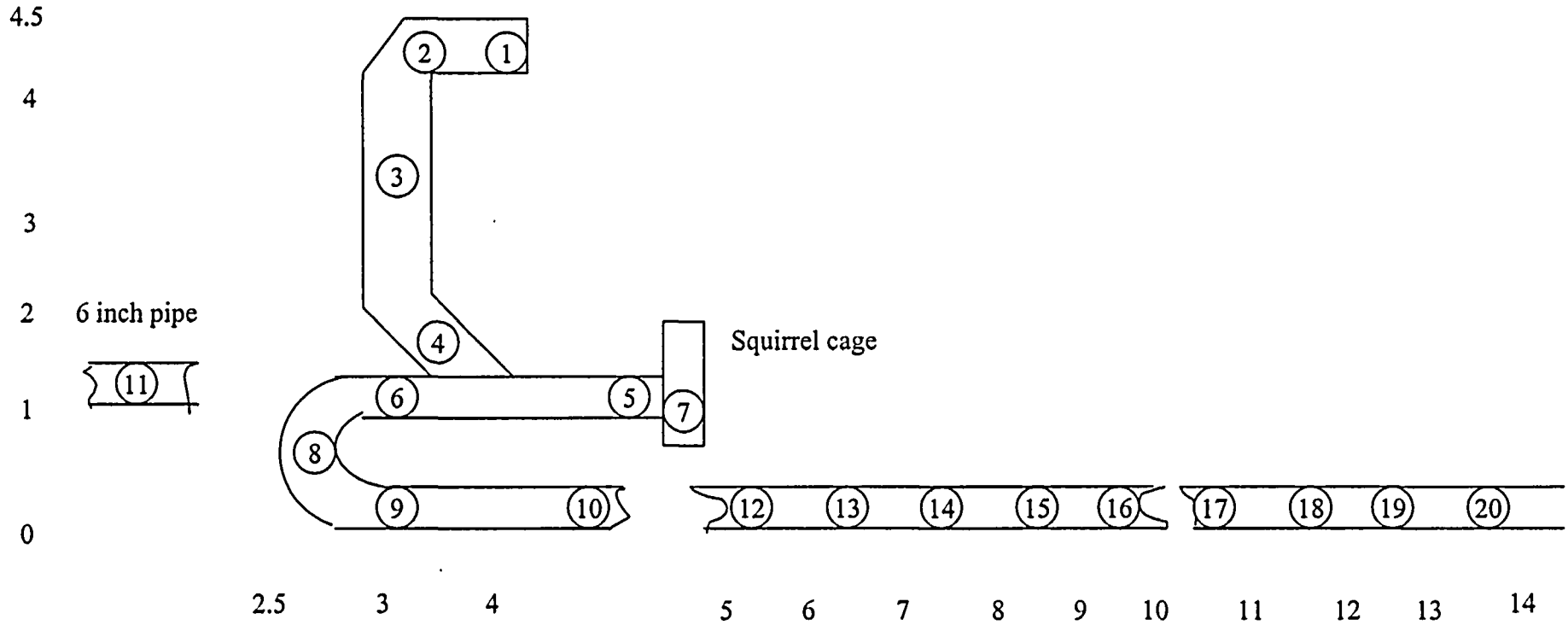
**UVAP
Radiological Survey Form**

| | | | | | | | | | | | |
|--|--|---------------------|-------------------------------|-------------------|-----------------|--|-------------------|-----------------|-----------------|---------------|-----------------------|
| Location: Nuclear Reactor Facility outside | | RWP/WP | Survey # UVA-FS-069 | | | Survey Type: Final Status Survey | | | Page 1 of 2 | | |
| Comments: | | Surveyed By: | Date: | Instrument | Serial # | Cal. Due | Probe Area | Serial # | Cal. Due | β Eff. | M α x β Bkg Lc |
| Final Status Survey of Hot Cell ventilation Class 1 | | Alice Thompson | 08/04/03 | Tennelec | 64052 | 4/16/2004 | n/a n/a | n/a | n/a | n/a | |
| Survey Unit 25 | | Jason Strand | 07/30/03 | M-2221 | 172051 | 4/2/2004 | 43-68 126 | 116718 | 4/2/2003 | 0.107 | 279 . |
| Final Status Survey Addendum 008 | | Brad Myers | 07/30/03 | | | | | | | | |
| | | Reviewed By: | Date: | | | | | | | | |
| | | Frank Myers | 08/04/03 | | | | | | | | |

Key: ○ = Smear xxx to xxx = Direct Fnst △ = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | | Static Count β | | | | Beta Scans | | | | |
|--------|-----------|---|------------------------|---|----------------|---------------|-----|------------------------|------------|-----|--|--|---------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded | | DPM/100cm ² | | No. | | | |
| | α | β | α | β | | CPM | Net | Lc | | | | | |
| 1 | See | | | | 1 | 268 | 220 | 356 | 256 | 1 | | | 220-300 |
| 2 | Attached | | | | 2 | 304 | 195 | 808 | 241 | 2 | | | 250-320 |
| 3 | Report | | | | 3 | 264 | 200 | 475 | 244 | 3 | | | 200-300 |
| 4 | | | | | 4 | 226 | 225 | 7 | 259 | 4 | | | 200-280 |
| 5 | | | | | 5 | 248 | 203 | 334 | 246 | 5 | | | 200-280 |
| 6 | | | | | 6 | 243 | 198 | 334 | 243 | 6 | | | 200-280 |
| 7 | | | | | 7 | 360 | 188 | 1,276 | 237 | 7 | | | 300-390 |
| 8 | | | | | 8 | 239 | 260 | -156 | 279 | 8 | | | 200-260 |
| 9 | | | | | 9 | 232 | 245 | -96 | 271 | 9 | | | 180-250 |
| 10 | | | | | 10 | 241 | 218 | 171 | 255 | 10 | | | 190-260 |
| 11 | | | | | 11 | 242 | 214 | 208 | 253 | 11 | | | 210-260 |
| 12 | | | | | 12 | 215 | 193 | 163 | 240 | 12 | | | 200-250 |
| 13 | | | | | 13 | 184 | 228 | -326 | 261 | 13 | | | 170-210 |
| 14 | | | | | 14 | 234 | 214 | 148 | 253 | 14 | | | 190-250 |
| 15 | | | | | 15 | 229 | 219 | 74 | 256 | 15 | | | 170-230 |
| 16 | | | | | 16 | 234 | 210 | 178 | 250 | 16 | | | 190-270 |
| 17 | | | | | 17 | 239 | 227 | 89 | 260 | 17 | | | 200-280 |
| 18 | | | | | 18 | 225 | 220 | 37 | 256 | 18 | | | 180-240 |
| 19 | | | | | 19 | 217 | 223 | -45 | 258 | 19 | | | 180-240 |
| 20 | | | | | 20 | 211 | 224 | -96 | 259 | 20 | | | 180-230 |
| QC | | | | | QC | 237 | 193 | 326 | 240 | QC | | | 180-230 |

Hot Cell Ventilation 1 meter grid



Survey # UVA-FS-069
Meter # L2221 172051
Probe # 43-68 116718
Date 7-30-03
O denotes smear and static count
locations.



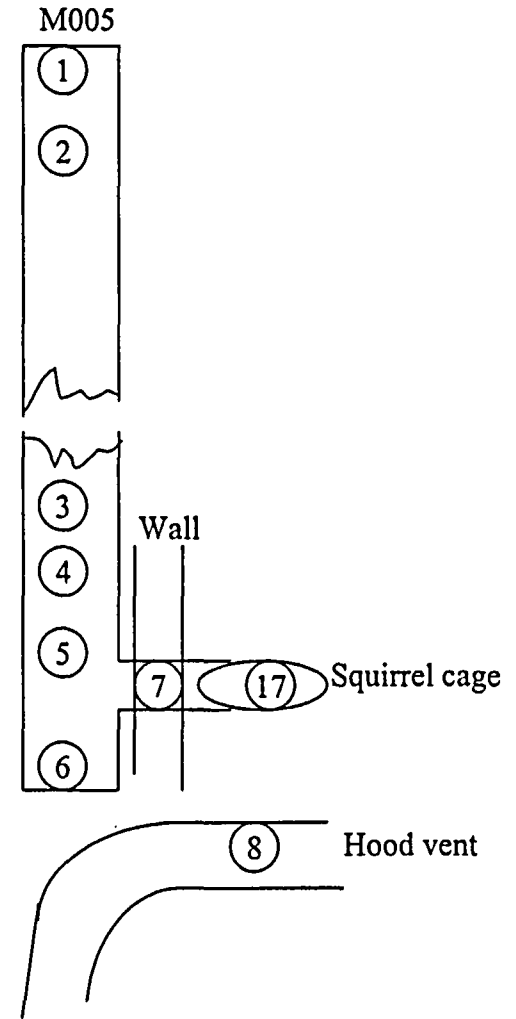
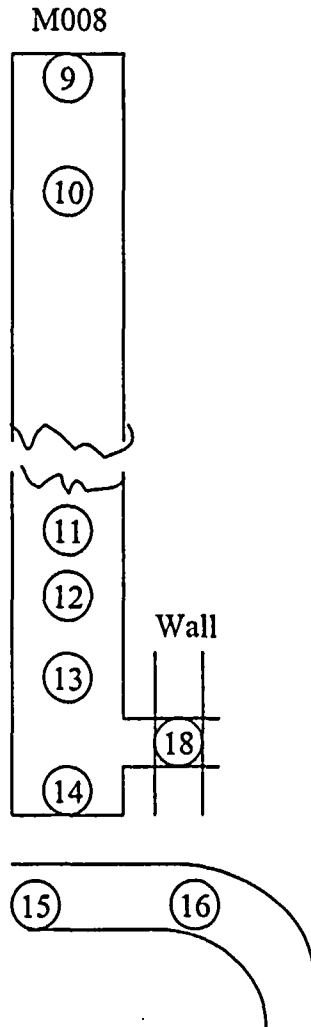
Radiological Survey Form

| | | | | |
|---|------------------------------------|-------------------------------|--|------------------------|
| Location: Nuclear Reactor Inside | RWP/WP | Survey # UVA-FS-070 | Survey Type: Final Status Survey | Page 1 of 4 |
| Comments: | Surveyed By: Alice Thompson | Date: 08/04/03 | Instrument: Tennelec | Serial #: 64052 |
| Final Status Survey of Lab ventilation Class 1 | Jason Strand | 07/31/03 | M-2221 | 172051 |
| Survey Unit 62 | Brad Myers | 07/31/03 | | |
| Final Status Survey Addendum 008 | Reviewed By: Frank Myers | Date: 08/04/03 | | |

Key: = Smear xxx to xi = Direct Frisk = air sample B = beta dose rate in mRad/h -X-X- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

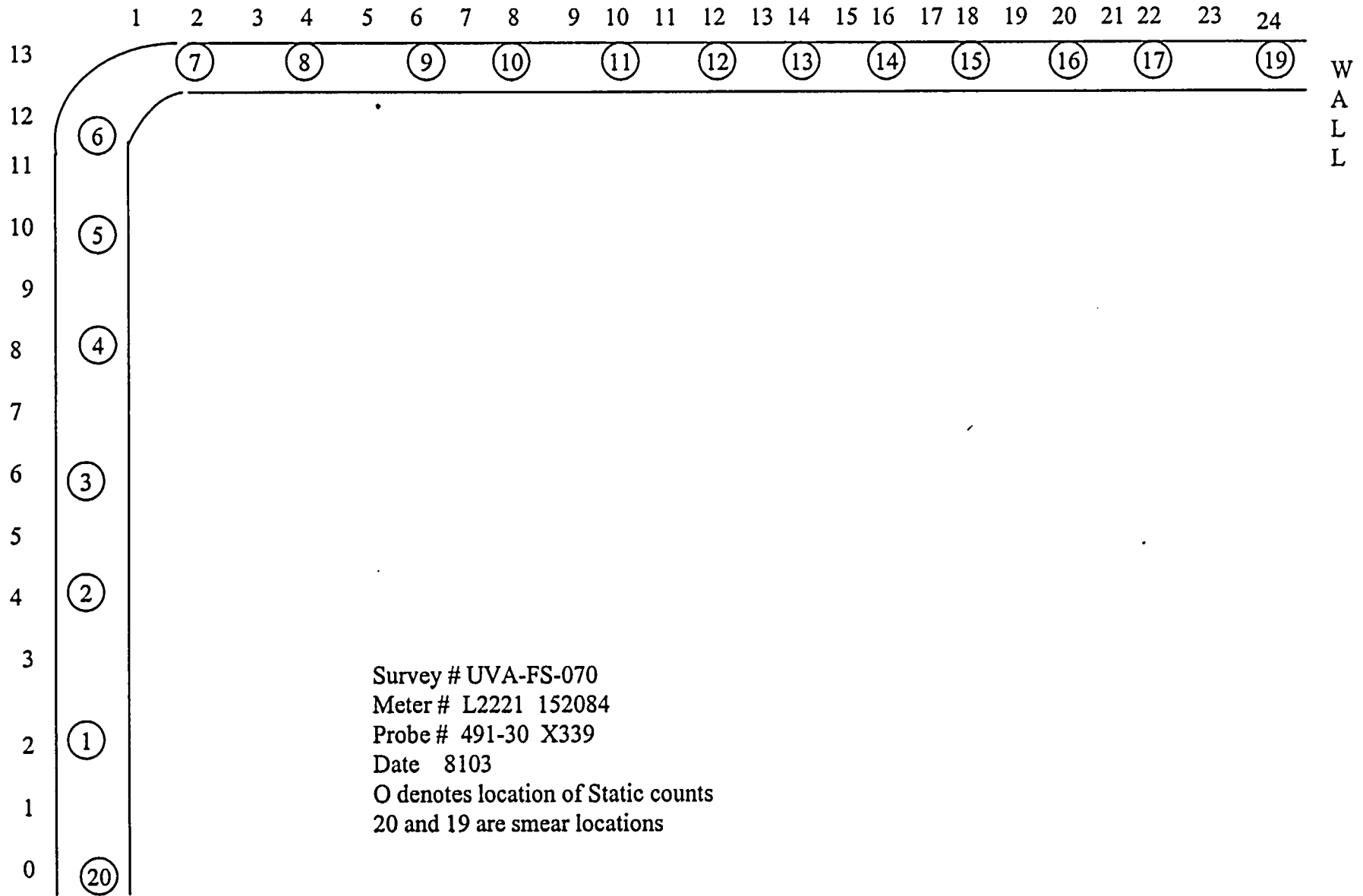
| Smears | | | | Static Count β | | | | Beta Scans | | | | Location |
|--------|-----------|---|------------------------|----------------|-----|-------------------|-----|------------------------|-----|-----|---------|--------------------------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded CPM | | DPM/100cm ² | | No. | Range | Location |
| | α | β | α | β | | Net | Lc | Net | Lc | | | |
| 1 | See | | | | 1 | 272 | 263 | 67 | 280 | 1 | 250-300 | M005 Lab Vent Stack |
| 2 | Attached | | | | 2 | 315 | 277 | 282 | 288 | 2 | 270-330 | M005 Lab Vent Stack |
| 3 | Report | | | | 3 | 326 | 349 | -171 | 323 | 3 | 270-330 | M005 Lab Vent Stack |
| 4 | | | | | 4 | 321 | 356 | -260 | 326 | 4 | 280-350 | M005 Lab Vent Stack |
| 5 | | | | | 5 | 391 | 321 | 519 | 310 | 5 | 300-400 | M005 Lab Vent Stack |
| 6 | | | | | 6 | 435 | 354 | 601 | 325 | 6 | 400-460 | M005 Lab Vent Stack |
| 7 | | | | | 7 | 487 | 441 | 341 | 363 | 7 | 400-500 | M005 Lab Vent Stack |
| 8 | | | | | 8 | 315 | 322 | -52 | 310 | 8 | 280-330 | M005 Lab Vent Stack |
| 9 | | | | | 9 | 290 | 277 | 96 | 288 | 9 | 250-350 | M008 Lab Vent stack |
| 10 | | | | | 10 | 281 | 273 | 59 | 286 | 10 | 250-300 | M008 Lab Vent stack |
| 11 | | | | | 11 | 279 | 278 | 7 | 288 | 11 | 200-280 | M008 Lab Vent stack |
| 12 | | | | | 12 | 327 | 290 | 274 | 294 | 12 | 300-350 | M008 Lab Vent stack |
| 13 | | | | | 13 | 293 | 267 | 193 | 282 | 13 | 250-350 | M008 Lab Vent stack |
| 14 | | | | | 14 | 483 | 364 | 883 | 330 | 14 | 400-500 | Bottom Plate |
| 15 | | | | | 15 | 299 | 313 | -104 | 306 | 15 | 250-310 | Bottom Plate |
| 16 | | | | | 16 | 325 | 308 | 126 | 303 | 16 | 300-340 | Bottom Plate |
| 17 | | | | | 17 | 334 | 311 | 171 | 305 | 17 | 300-380 | M005 Lab Vent stack |
| QC | | | | | QC | 356 | 319 | 274 | 309 | QC | 300-400 | M005 Lab Vent stack |
| 18 | | | | | 18 | 342 | 265 | 571 | 281 | 18 | 300-380 | M008 Lab vent stack |
| 19 | | | | | 19 | 412 | 335 | 571 | 316 | 19 | 350-430 | Source Room vent opening |
| 20 | | | | | 20 | 352 | 300 | 386 | 299 | 20 | 350-400 | Source Room vent opening |

Room M008 and M005 Ventilation I meter grid



Survey # UVA-FS-070
Meter # L2221 172051
Probe # 43-68 116718
Gamma scan
Readings in CPM
O denotes smear and static
count locations.

Source Room Vent 1 meter grid





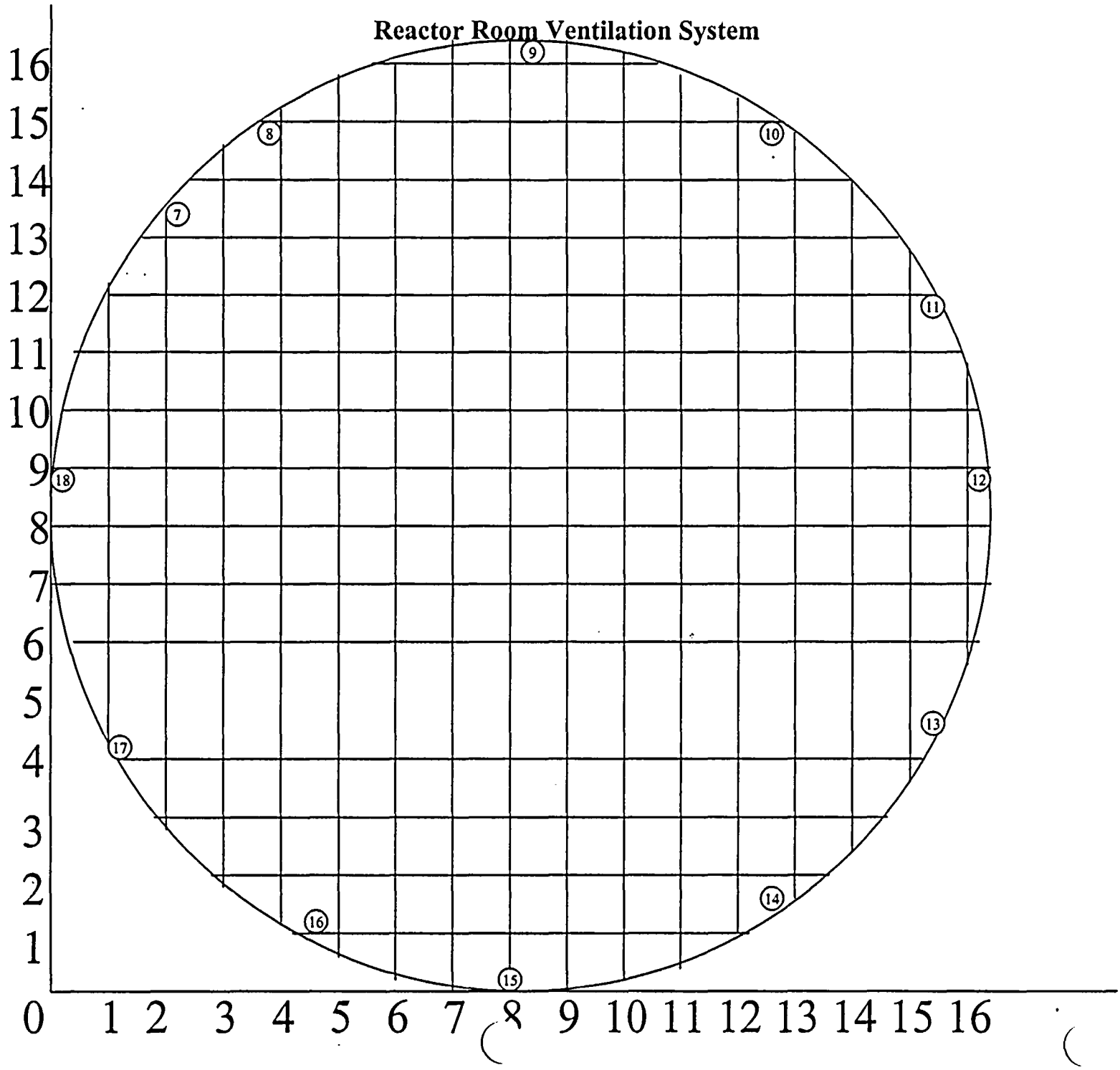
UVAP Radiological Survey Form

| | | | | |
|--|--------------------------|-------------------------------|--|------------------------------|
| Location: Nuclear Reactor Inside | RWP/IWP | Survey # UVA-FS-071 | Survey Type: Final Status Survey | Page 1 of 3 |
| Comments: Final Status Survey of Reactor Room Ventilation System #2 Class 1 Survey Unit 26 Final Status Survey Addendum 008 | | | | |
| Surveyed By: Alice Thompson | Date: 08/04/03 | Instrument Tennelec | Serial # 64052 | Cal. Due 4/16/2004 |
| Jason Strand | 08/01/03 | M-2221 | 172051 | 4/2/2004 |
| Brad Myers | 08/01/03 | | | |
| Reviewed By: Frank Myers | Date: 08/04/03 | | | |

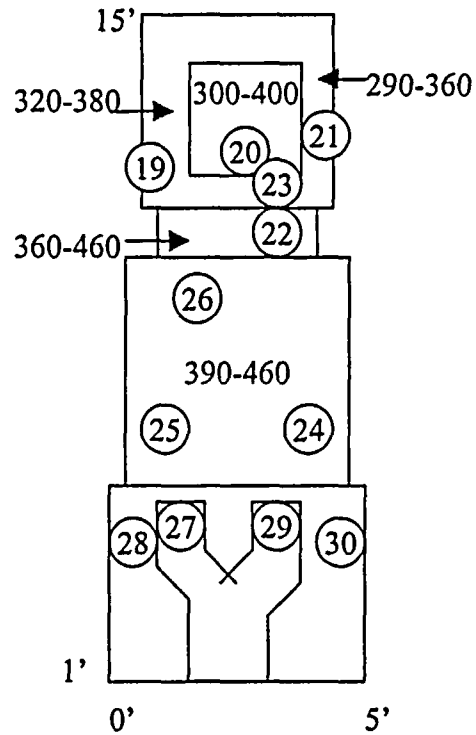
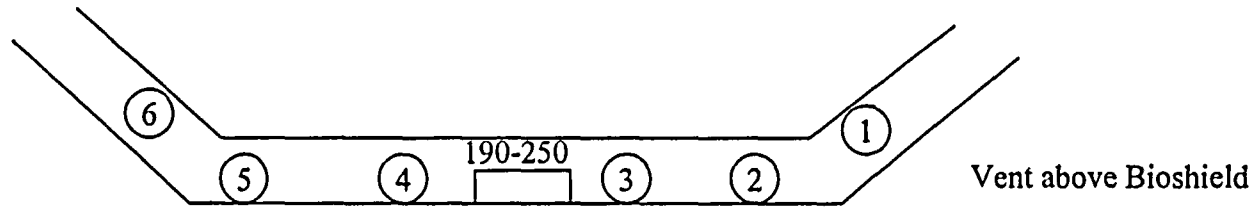
Key: Smear xxx to xxx = Direct Fnsk air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | | Static Count β | | | | Coordinates | | | | |
|--------|-----------|---|------------------------|---|----------------|---------------|-----|-------|-------------|-----|-------|------|-----------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded | | Net | Lc | No. | North | East | Elevation |
| | α | β | α | β | | CPM | | | | | | | |
| 1 | See | | | | 1 | 233 | 247 | -104 | 272 | 1 | | | |
| 2 | Attached | | | | 2 | 214 | 233 | -141 | 264 | 2 | | | |
| 3 | Report | | | | 3 | 242 | 228 | 104 | 261 | 3 | | | |
| 4 | | | | | 4 | 241 | 226 | 111 | 260 | 4 | | | |
| 5 | | | | | 5 | 237 | 226 | 82 | 260 | 5 | | | |
| 6 | | | | | 6 | 252 | 215 | 274 | 253 | 6 | | | |
| 7 | | | | | 7 | 372 | 330 | 312 | 314 | 7 | | | |
| 8 | | | | | 8 | 360 | 331 | 215 | 314 | 8 | | | |
| 9 | | | | | 9 | 378 | 330 | 356 | 314 | 9 | | | |
| 10 | | | | | 10 | 373 | 319 | 401 | 309 | 10 | | | |
| 11 | | | | | 11 | 463 | 342 | 897 | 320 | 11 | | | |
| 12 | | | | | 12 | 406 | 316 | 668 | 307 | 12 | | | |
| 13 | | | | | 13 | 397 | 336 | 452 | 317 | 13 | | | |
| 14 | | | | | 14 | 390 | 309 | 601 | 304 | 14 | | | |
| 15 | | | | | 15 | 440 | 318 | 905 | 306 | 15 | | | |
| 16 | | | | | 16 | 403 | 347 | 415 | 322 | 16 | | | |
| 17 | | | | | 17 | 380 | 342 | 282 | 320 | 17 | | | |
| 18 | | | | | 18 | 373 | 329 | 326 | 313 | 18 | | | |
| 19 | | | | | 19 | 360 | 325 | 260 | 312 | 19 | | | |
| 20 | | | | | 20 | 363 | 307 | 415 | 303 | 20 | | | |
| QC | | | | | QC | 362 | 320 | 312 | 309 | QC | | | |
| 21 | | | | | 21 | 355 | 318 | 274 | 308 | 21 | | | |
| 22 | | | | | 22 | 474 | 367 | 794 | 331 | 22 | | | |
| 23 | | | | | 23 | 412 | 366 | 341 | 331 | 23 | | | |
| 24 | | | | | 24 | 442 | 328 | 846 | 313 | 24 | | | |
| 25 | | | | | 25 | 437 | 322 | 853 | 310 | 25 | | | |
| 26 | | | | | 26 | 488 | 344 | 1,068 | 321 | 26 | | | |
| 27 | | | | | 27 | 529 | 337 | 1,424 | 317 | 27 | | | |
| 28 | | | | | 28 | 669 | 341 | 2,433 | 319 | 28 | | | |
| 29 | | | | | 29 | 523 | 314 | 1,550 | 306 | 29 | | | |
| 30 | | | | | 30 | 499 | 314 | 1,372 | 306 | 30 | | | |
| QC | | | | | QC | 493 | 365 | 949 | 330 | QC | | | |

Reactor Room Ventilation System

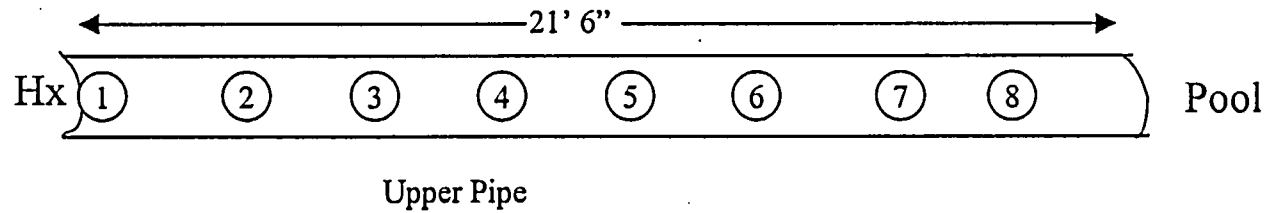
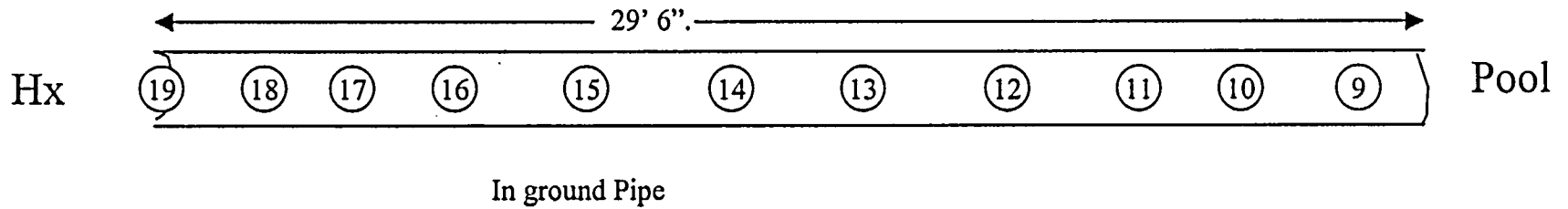


Reactor room Recirculation System



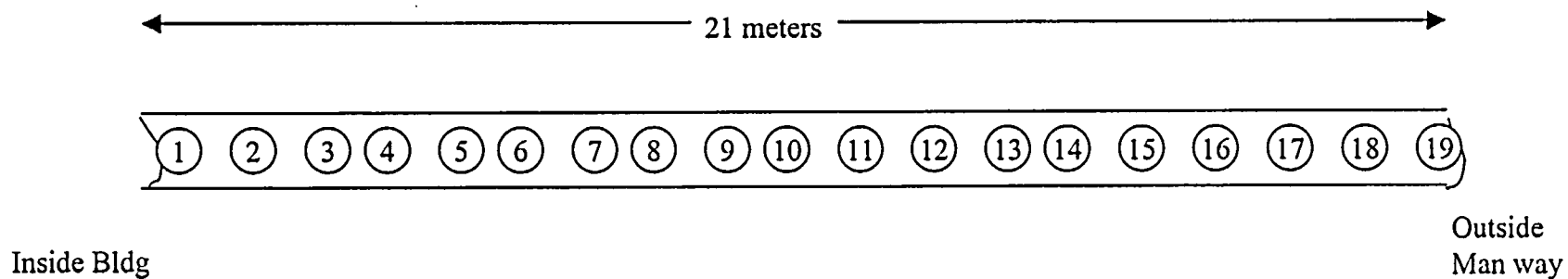
Survey # UVA-FS-071
 Meter # L2221 172051
 Probe # 43-68 116718
 Date 8 -01-03
 Beta scans
 Readings in CPM
 O denotes smear and static
 count locations.

Heat Exchanger Piping Survey



Survey # UVA-FS-072
Meter # L2221 172051
Probe # 43-68 116718
Date 8-4-03
Beta scan
Readings in CPM
O denotes location of static
counts.

LWST Drain Line 1 meter grid



Survey # UVA-FS-073

Meter # L2221 152184

Probe # 491-39 X339

Beta Scan Readings in CPM

O denotes location of static counts

Date 8503



**UVAP
Radiological Survey Form**

4

| | | | | | | | |
|---|--|----------------------------------|-----------------------|---|-------------------------|---------------------------|-------------------------------|
| Location: RWPI/WP | | Survey # UVA-FS-074 | | Survey Type: Final Status Survey | | Page 1 of 1 | |
| Comments: | | Surveyed By: Jason Strand | Date: 08/07/03 | Instrument: M-2221 | Serial #: 152184 | Cal. Due: 3/5/2004 | Probe/Area: 491-30 100 |
| Final Status Survey of Sanitary sewer,Bulk Access storm and French drainlines Class 1 | | Reviewed By: Brad Myers | Date: 08/07/03 | | | | |
| Survey Unit 23 | | Reviewed By: Frank Myers | Date: 08/08/03 | | | | |
| Final Status Survey Addendum 002 | | | | | | | |

Key: ○ = Smear xxx to xxx = Direct Fmsh △ = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | | Static Count β | | | | Beta Scans | |
|--------|-----------|---|------------------------|---|----------------|-------------------|-----|------|------------|-------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded CPM | Net | Lc | No. | |
| | α | β | α | β | | | | | | |
| | | | | | 1 | 23 | 19 | 62 | 124 | 17-41 |
| | | | | | 2 | 24 | 36 | -185 | 171 | 20-31 |
| | | | | | 3 | 48 | 31 | 262 | 158 | 20-45 |
| | | | | | 4 | 34 | 25 | 138 | 142 | 22-41 |
| | | | | | 5 | 34 | 31 | 46 | 158 | 20-41 |
| | | | | | 6 | 27 | 18 | 138 | 121 | 25-43 |
| | | | | | 7 | 34 | 17 | 262 | 117 | 18-32 |
| | | | | | 8 | 37 | 25 | 185 | 142 | 43-59 |
| | | | | | 9 | 38 | 27 | 138 | 148 | 32-56 |
| | | | | | 10 | 20 | 17 | 46 | 117 | 30-50 |
| | | | | | 11 | 69 | 40 | 446 | 180 | 22-41 |
| | | | | | 12 | 48 | 48 | 0 | 197 | 33-61 |
| | | | | | 13 | 32 | 26 | 92 | 145 | 28-52 |
| | | | | | 14 | 42 | 41 | 15 | 182 | 17-25 |
| | | | | | 15 | 43 | 42 | 15 | 184 | 32-54 |
| | | | | | 16 | 34 | 41 | -108 | 182 | |
| | | | | | 17 | 44 | 31 | 200 | 158 | |
| | | | | | 18 | 30 | 27 | 46 | 148 | |
| | | | | | 19 | 19 | 20 | -15 | 127 | |
| | | | | | 20 | 47 | 45 | 31 | 191 | |
| | | | | | QC | 52 | 52 | 0 | 205 | |



UVAP Radiological Survey Form

4

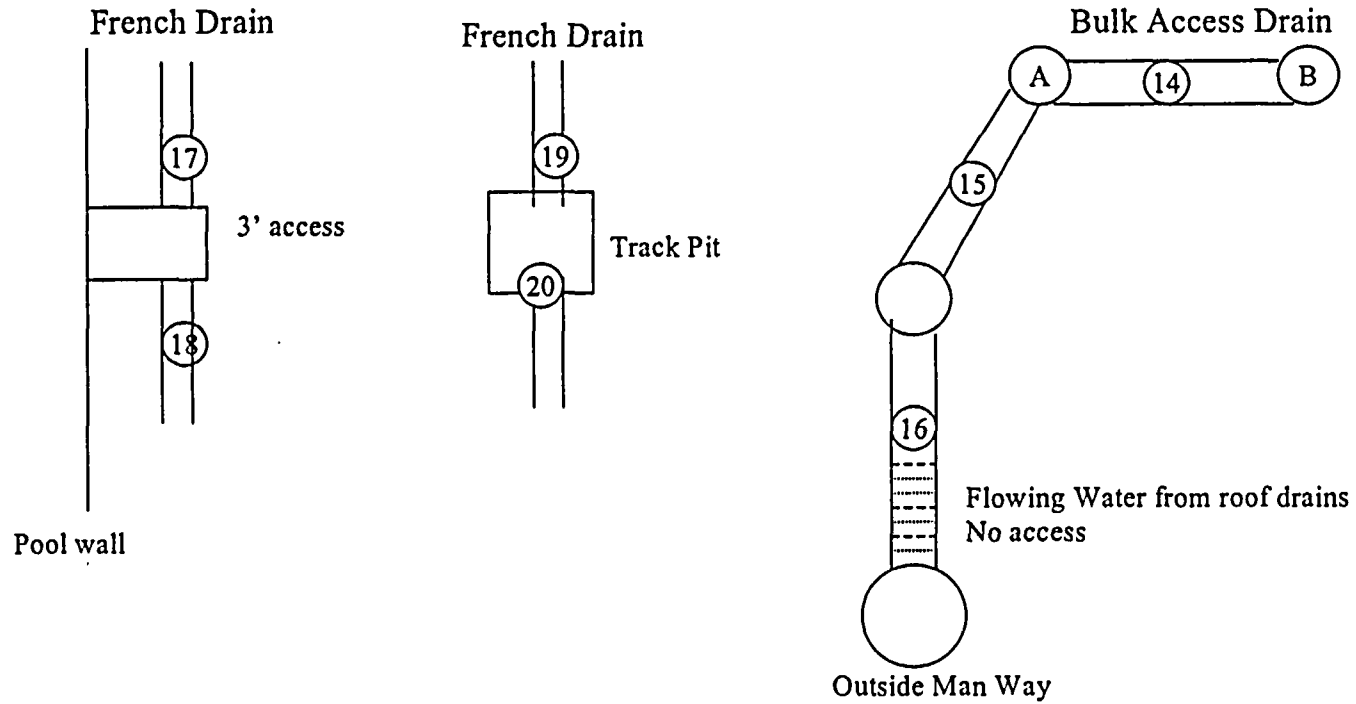
| | | | | | | | | | | | | | | | | | | | | | | |
|---|--|--|---------------------------|--|----------------|-----------------------|--------------------|--|----------------------------------|--|--------------------|-------------|-----------------------|--|------------------|--|--------------------|--|----------------|--|---------------------|--|
| Location: Nuclear Reactor Inside | | | RWP/WP | | | Survey #: UVA-FS-074A | | | Survey Type: Final Status Survey | | | Page 2 of 3 | | | | | | | | | | |
| Comments: Final Status Survey of Sanitary sewer Bulk Access storm and French drainlines Class 1 Survey Unit 23 Final Status Survey Addendum 002 | | | Surveyed By: Jason Strand | | Date: 08/07/03 | | Instrument: M-2221 | | Serial #: 172051 | | Cal. Due: 4/2/2004 | | Probe Area: 43-68 126 | | Serial #: 116719 | | Cal. Due: 4/2/2004 | | β Eff.: 0.2533 | | M α x β Bkg Lc: 309 | |
| Reviewed By: Frank Myers | | | Date: 08/08/03 | | | | | | | | | | | | | | | | | | | |

Key: = Smear 100x100x100x = Direct Frisk = air sample = beta dose rate in mRad/h -X- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | | Static Count β | | | | Beta Scans | | |
|--------|-----------|---|------------------------|---|----------------|-------------------|-----|------------------------|------------|-----|-----------------------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded CPM | | DPM/100cm ² | | No. | Masslinn swab in pipe |
| | α | β | α | β | | Net | Lc | Net | Lc | | |
| | | | | | | | | | | | |
| | | | | | 1 | 378 | 280 | 307 | 122 | | 300-400 |
| | | | | | 2 | 320 | 298 | 69 | 126 | | 280-350 |
| | | | | | 3 | 344 | 278 | 207 | 122 | | 290-380 |
| | | | | | 4 | 390 | 320 | 219 | 131 | | 330-420 |
| | | | | | 5 | 359 | 271 | 276 | 120 | | 300-380 |
| | | | | | 6 | 482 | 281 | 630 | 122 | | 440-500 |
| | | | | | 7 | 440 | 302 | 432 | 127 | | 380-460 |
| | | | | | | | | | | | |
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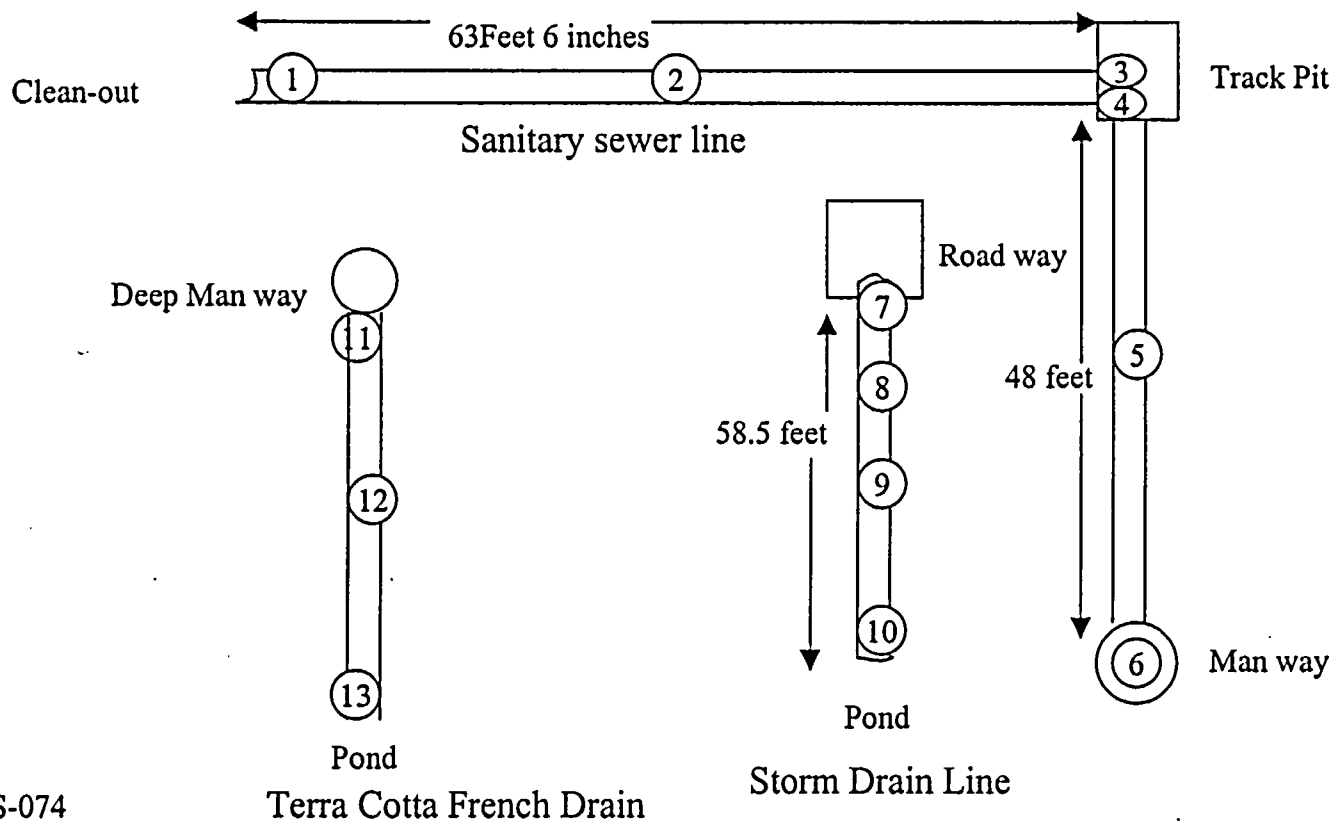
French Drain in Rx pool and Track pit

A B Bulk Access drain line



Survey # UVA-FS-074
 Meter # L2221 152184
 Probe # 491-30 X339
 Date 8-7-03
 Beta scans
 Readings in CPM
 O denotes location of static counts.

Sanitary sewer, storm drain and French drain



Survey UVA-FS-074
 Meter # L2221 152184
 Probe # 491-30 X339
 Date 8-07-03
 Beta scans
 Readings in CPM
 O denotes location of static counts.



UVAP

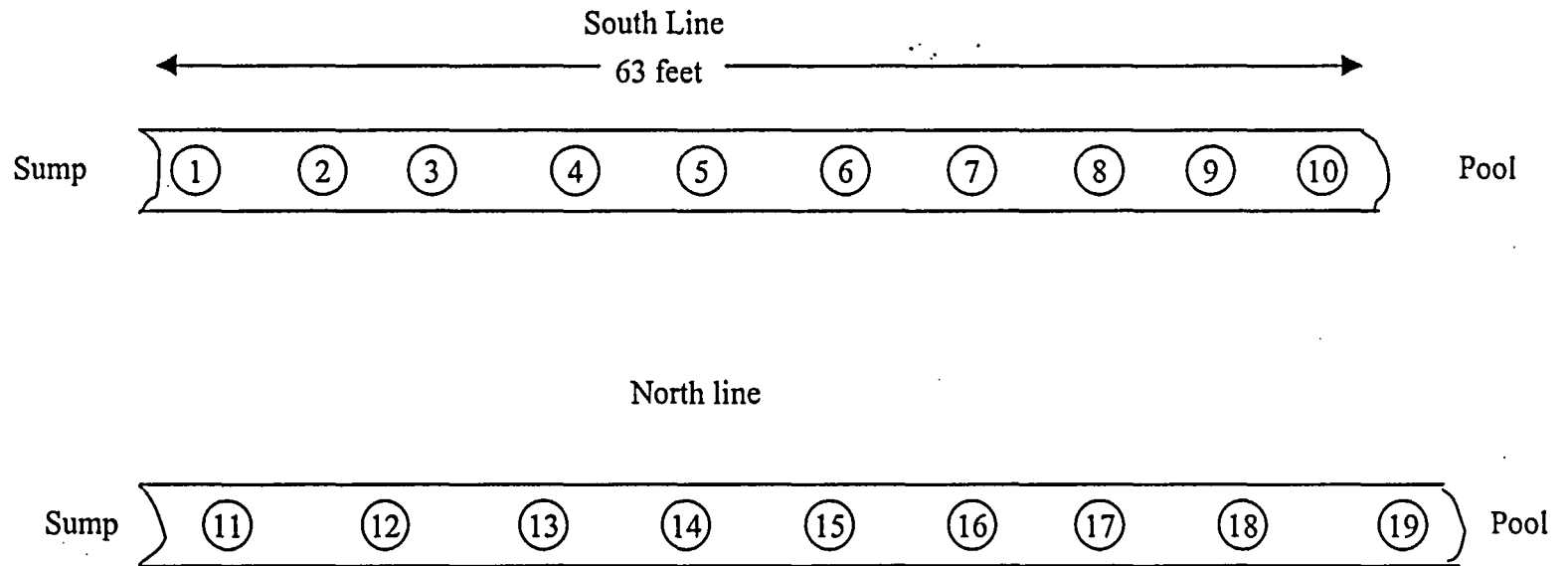
Radiological Survey Form

| | | | | | | | | | | | |
|--|--|--------------|----------|----------------------|----------|----------------------------------|------------|-------------|-----------|--------------|--------------------|
| Location: Nuclear Reactor Inside | | RWP/WP | | Survey #: UVA-FS-075 | | Survey Type: Final Status Survey | | Page 1 of 3 | | | |
| Comments: | | Surveyed By: | Date: | Instrument | Serial # | Cal. Due | Probe Area | Serial # | Cal. Due | β Eff. | Max β Bkg Lc |
| Final Status Survey of Reactor pool 2 nd drain line Class 1 | | Jason Strand | 08/07/03 | M-2221 | 152184 | 3/5/2004 | 491-30 100 | X339 | 10/2/2004 | 0.085 | 306 |
| Survey Unit 28 | | Brad Myers | 08/07/03 | | | | | | | | |
| Final Status Survey Addendum 002 | | Reviewed By: | Date: | | | | | | | | |
| | | Frank Myers | 08/08/03 | | | | | | | | |

Key: = Smear xxx to xy = Direct Frisk | = air sample | B = beta dose rate in mRad/yr | -X-X- = Boundary | SOP = Step Off Pad | xy = contact/12" dose rate | # = General dose rate

| Smears | | | | Static Count β | | | | Beta Scans | | | | | | |
|--------|-----------|---------|------------------------|----------------------|-----|---------------|-----|------------------------|-----|-----|--|--|--|--|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded | | DPM/100cm ² | | No. | | | | |
| | α | β | α | β | | CPM | Net | Lc | | | | | | |
| | | | | | 1 | 22 | 22 | 0 | 133 | | | | | |
| | | | | | 2 | 37 | 33 | 62 | 163 | | | | | |
| | | | | | 3 | 34 | 48 | -185 | 193 | | | | | |
| | | | | | 4 | 59 | 62 | -46 | 224 | | | | | |
| | | | | | 5 | 72 | 59 | 200 | 219 | | | | | |
| | | | | | 6 | 62 | 64 | -31 | 228 | | | | | |
| | | | | | 7 | 64 | 45 | 292 | 191 | | | | | |
| | | | | | 8 | 65 | 43 | 338 | 187 | | | | | |
| | | | | | 9 | 58 | 68 | -154 | 235 | | | | | |
| | | | | | 10 | 30 | 32 | -31 | 181 | | | | | |
| | | | | | 11 | 42 | 39 | 46 | 178 | | | | | |
| | | | | | 12 | 45 | 43 | 31 | 187 | | | | | |
| | | | | | 13 | 71 | 55 | 246 | 211 | | | | | |
| | | | | | 14 | 65 | 72 | -108 | 241 | | | | | |
| | | | | | 15 | 50 | 49 | 15 | 199 | | | | | |
| | | | | | 16 | 47 | 40 | 108 | 180 | | | | | |
| | | | | | 17 | 58 | 49 | 138 | 199 | | | | | |
| | | | | | 18 | 28 | 32 | -62 | 181 | | | | | |
| | | | | | 19 | 45 | 28 | 262 | 151 | | | | | |
| | | | | | QC | 35 | 36 | -15 | 171 | | | | | |

Reactor Pool 2" drain line



Survey # UVA-FS-075

Meter # L2221 152184

Probe # 491-30 X339

Date 8-7-03

Beta Scan

Readings in CPM

O denotes location of static counts



UVAP

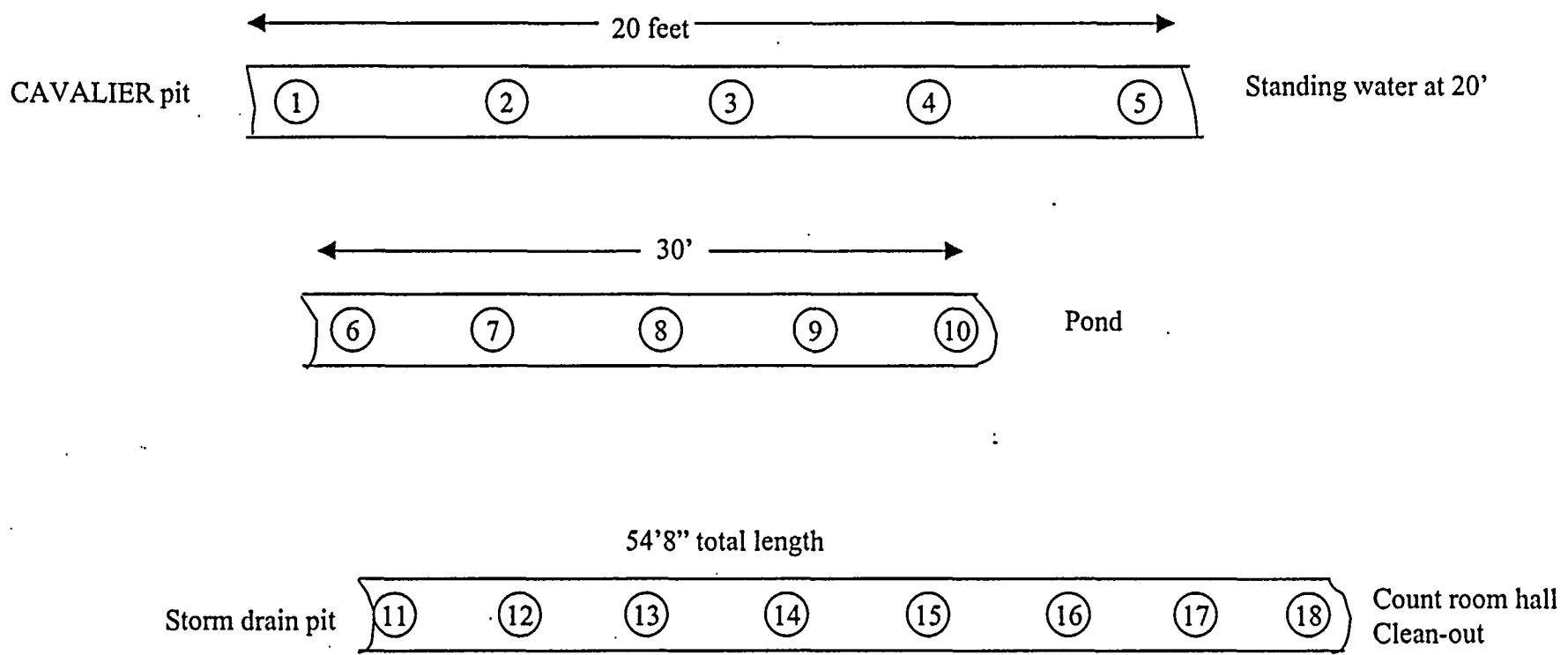
Radiological Survey Form

| | | | | |
|--|--------------|------------|---------------------|-------------|
| Location: | RWP/WP | Survey # | Survey Type: | Page 1 of 3 |
| Nuclear Reactor Inside | | UVA-FS-076 | Final Status Survey | |
| Comments: | Surveyed By: | Date: | Instrument | Serial # |
| Final Status Survey of CAVALIER drains | Jason Strand | 08/07/03 | M2221 | 152184 |
| Class 1 | | | | |
| Survey Unit 51 | Brad Myers | 08/07/03 | | |
| Final Status Survey Addendum 002 | Reviewed By: | Date: | | |
| | Frank Myers | 08/08/03 | | |

Key: = Smear; xxx to xx = Direct Frisk | = air sample | B = beta dose rate in mRad/h | -X-X- = Boundary | SOP = Step Off Pad | |xy = contact/12" dose rate | # = General dose rate

| Smears | | | | | Static Count β | | | | Beta Scans | |
|-----------|---------|------------------------|---------|-----|----------------------|---------------|----|------------------------|------------|-------|
| Gross CPM | | DPM/100cm ² | | | No. | Unsh/Shielded | | DPM/100cm ² | | No. |
| α | β | α | β | CPM | | Net | Lc | | | |
| | | | | | 1 | 15 | 17 | -31 | 117 | 13-29 |
| | | | | | 2 | 31 | 34 | -48 | 168 | 28-43 |
| | | | | | 3 | 25 | 18 | 138 | 114 | 20-35 |
| | | | | | 4 | 28 | 22 | 92 | 133 | 17-34 |
| | | | | | 5 | 37 | 28 | 138 | 151 | 36-50 |
| | | | | | 6 | 38 | 34 | 62 | 168 | 33-47 |
| | | | | | 7 | 39 | 19 | 308 | 124 | 27-39 |
| | | | | | 8 | 48 | 15 | 508 | 110 | 17-31 |
| | | | | | 9 | 28 | 18 | 123 | 121 | 17-31 |
| | | | | | 10 | 32 | 33 | -15 | 163 | 26-47 |
| | | | | | 11 | 25 | 28 | -48 | 151 | 15-31 |
| | | | | | 12 | 41 | 33 | 123 | 163 | 20-36 |
| | | | | | 13 | 21 | 22 | -15 | 133 | 20-36 |
| | | | | | 14 | 28 | 25 | 46 | 142 | 40-55 |
| | | | | | 15 | 28 | 31 | -46 | 158 | 24-37 |
| | | | | | 16 | 48 | 45 | 46 | 191 | |
| | | | | | 17 | 36 | 32 | 62 | 161 | |
| | | | | | 18 | 32 | 30 | 31 | 156 | |
| | | | | | QC | 35 | 28 | 108 | 151 | |

CAVALIER Drains



Survey # UVA-FS-076
Meter # L2221 172051
Probe # 491-30 X339
Date 8-07-03
Beta Scan
Readings in CPM
O denotes location of static counts.



**UVAP
Radiological Survey Form**

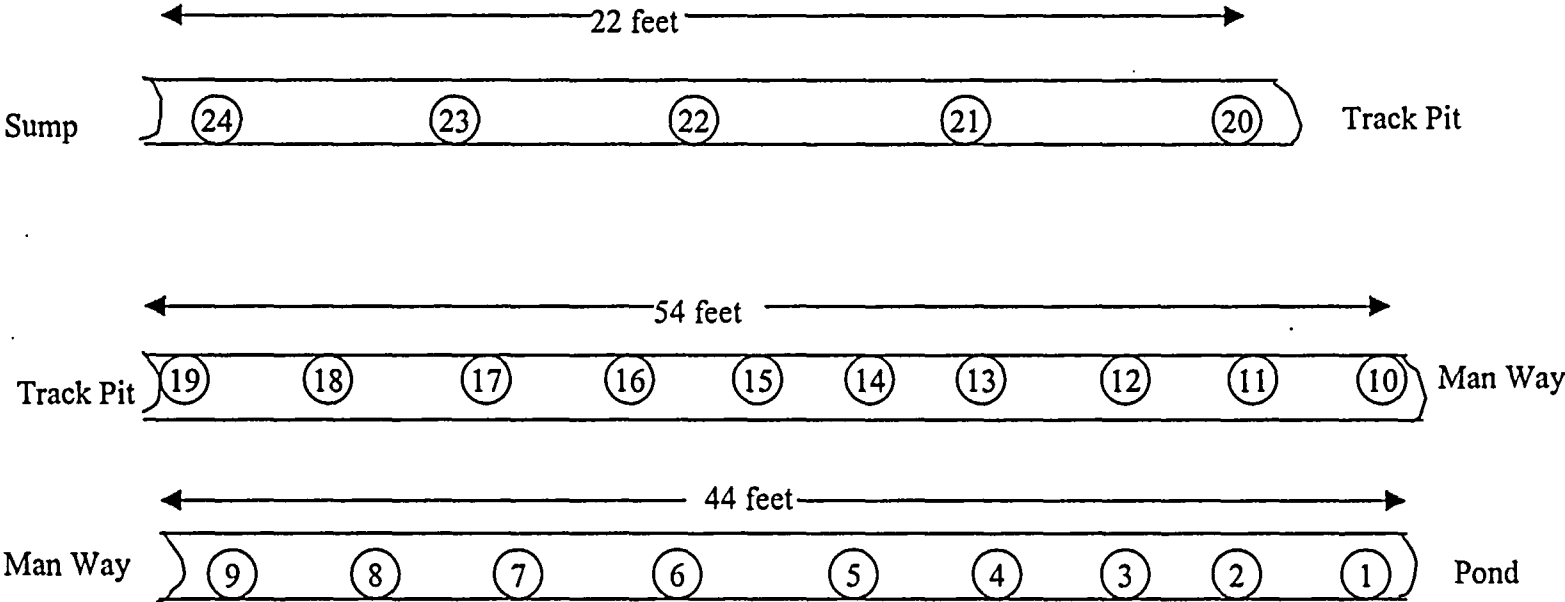
3

| | | | | | | | |
|--|--|----------------------------------|-----------------------|---|-------------------------|---------------------------|-------------------------------|
| Location: RWP/WP | | Survey # UVA-FS-077 | | Survey Type: Final Status Survey | | Page 1 of 3 | |
| Comments: | | Surveyed By: Jason Strand | Date: 08/07/03 | Instrument: M-2221 | Serial #: 152184 | Cal. Due: 3/5/2003 | Probe Area: 491-30 100 |
| Final Status Survey of Reactor Header drains Class 1 | | Reviewed By: Brad Myers | Date: 08/07/03 | Serial #: | Cal. Due: | β Eff.: 0.065 | Max β Bkg Lc: 197 |
| Survey Unit 33 | | Reviewed By: Frank Myers | Date: 08/08/03 | Serial #: | Cal. Due: | β Eff.: | Max β Bkg Lc: |
| Final Status Survey Addendum 002 | | Reviewed By: | Date: | Serial #: | Cal. Due: | β Eff.: | Max β Bkg Lc: |

Key: ○ = Smear xxx to xxx = Direct Frst ▲ = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

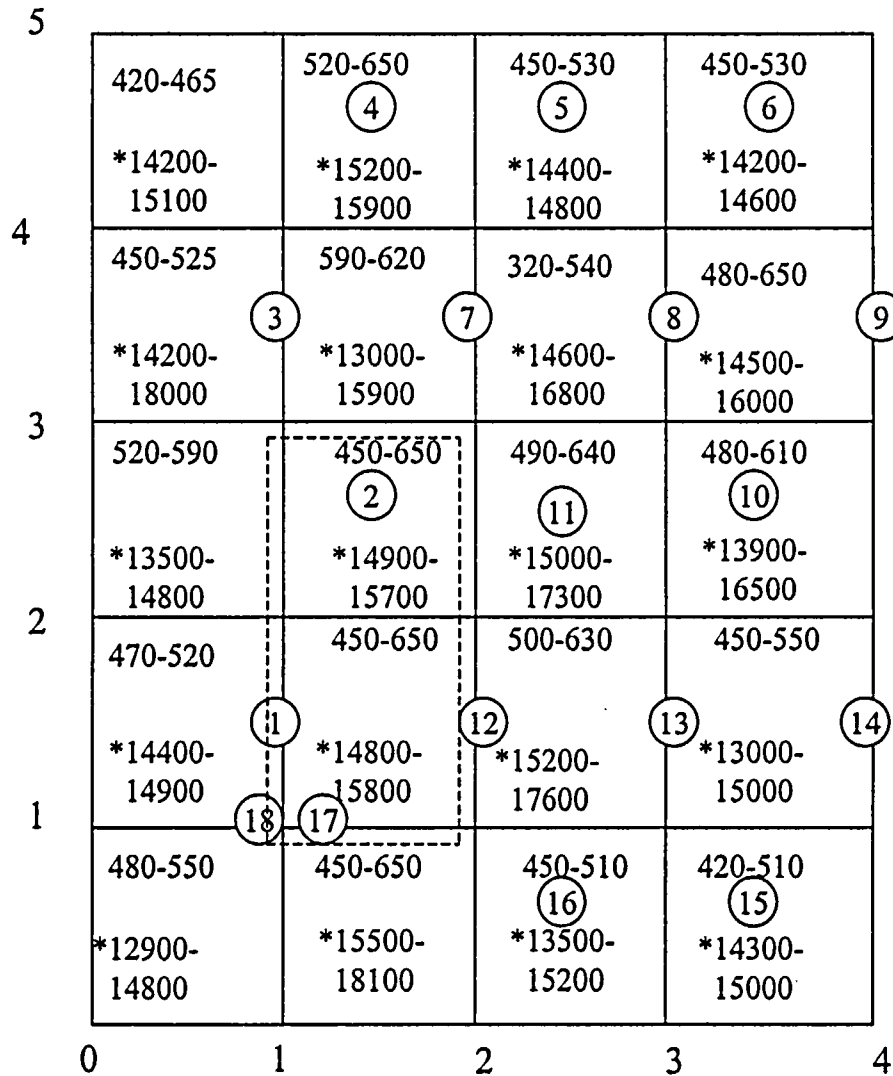
| Smears | | | | Static Count β | | | | Beta Scans | | | |
|--------|-----------|---|------------------------|----------------|-----|-------------------|-----|------------|-----|--|-------|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded CPM | Net | Lc | No. | | |
| | α | β | α | β | | | | | | | |
| | | | | | 1 | 41 | 27 | 215 | 148 | | 30-50 |
| | | | | | 2 | 48 | 31 | 262 | 158 | | 28-45 |
| | | | | | 3 | 42 | 25 | 262 | 142 | | 28-40 |
| | | | | | 4 | 42 | 40 | 31 | 180 | | 28-38 |
| | | | | | 5 | 30 | 29 | 15 | 153 | | 35-53 |
| | | | | | 6 | 51 | 44 | 108 | 189 | | 30-51 |
| | | | | | 7 | 46 | 42 | 62 | 184 | | 30-50 |
| | | | | | 8 | 46 | 31 | 231 | 158 | | 38-53 |
| | | | | | 9 | 43 | 31 | 185 | 158 | | 27-61 |
| | | | | | 10 | 54 | 48 | 92 | 197 | | 28-46 |
| | | | | | 11 | 29 | 33 | -62 | 163 | | 37-51 |
| | | | | | 12 | 39 | 36 | 46 | 171 | | 33-56 |
| | | | | | 13 | 38 | 37 | 15 | 173 | | 31-52 |
| | | | | | 14 | 49 | 38 | 169 | 175 | | 27-46 |
| | | | | | 15 | 39 | 31 | 123 | 158 | | 27-46 |
| | | | | | 16 | 39 | 41 | -31 | 182 | | 30-43 |
| | | | | | 17 | 43 | 41 | 31 | 182 | | 29-49 |
| | | | | | 18 | 38 | 38 | 0 | 175 | | 47-58 |
| | | | | | 19 | 41 | 43 | -31 | 187 | | 36-48 |
| | | | | | 20 | 49 | 34 | 231 | 166 | | 20-43 |
| | | | | | 21 | 30 | 23 | 106 | 136 | | 12-28 |
| | | | | | 22 | 41 | 45 | -62 | 191 | | |
| | | | | | 23 | 24 | 25 | -15 | 142 | | |
| | | | | | 24 | 13 | 21 | -123 | 130 | | |
| | | | | | QC | 15 | 17 | -31 | 117 | | |

Reactor Header to Pond drain Lines



Survey # UVA-FS-077
Meter # L2221 152184
Probe # 491-30 X399
Date 8-07-03
Beta Scans
Readings in CPM
O denotes location of static counts.

Soil Sampling outside Ctmt rollup door 1 meter grid



Survey # UVA- FS-078
 Meter # L2221 172051
 Probe # 43-68 116718
 Meter # L2221 *157031
 Probe # 44-10 *155202
 Date 8803
 Beta and Gamma Scans
 Readings in CPM
 O denotes sample locations



UVAP

Radiological Survey Form

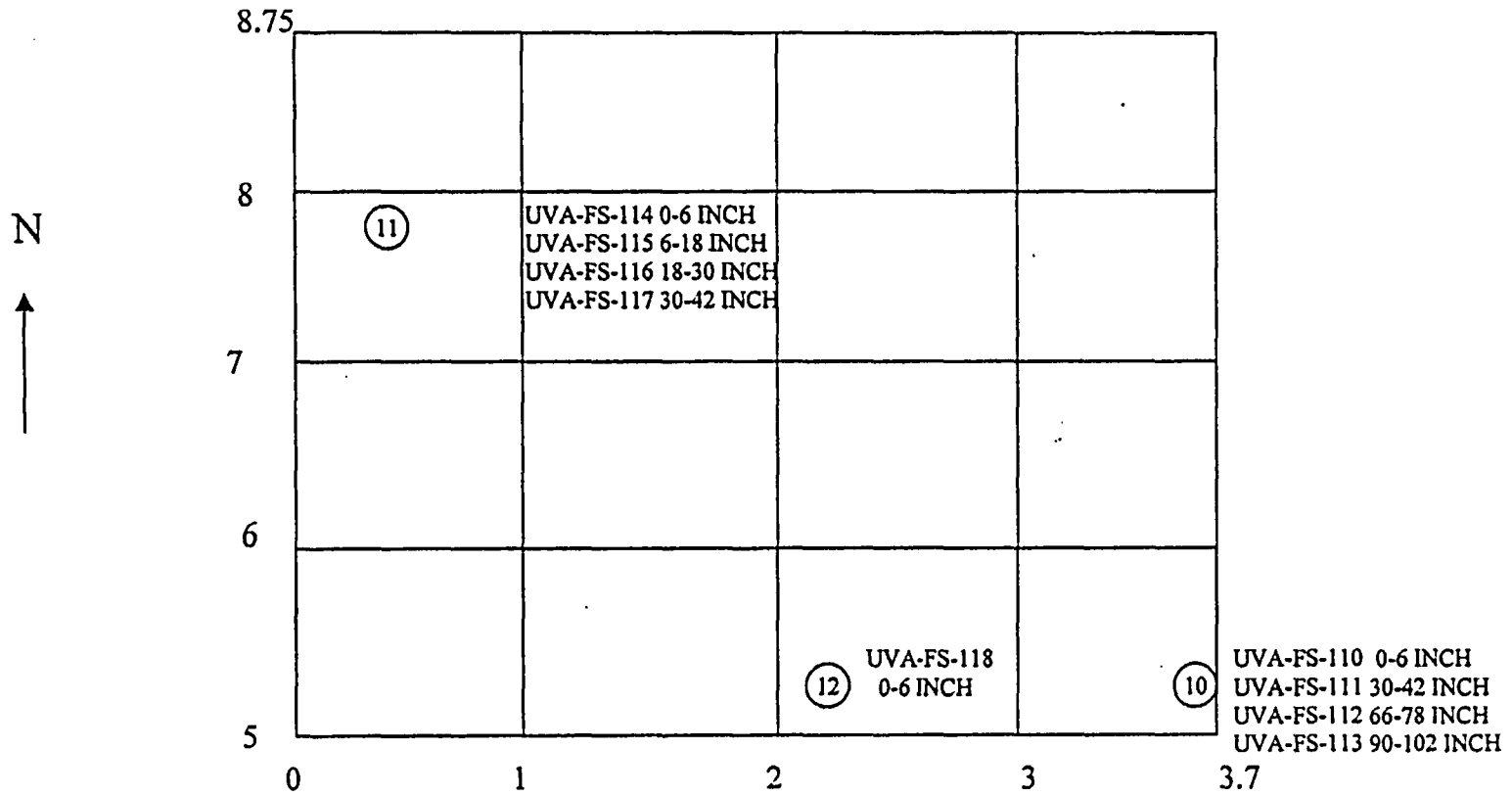
| | | | | | | | | | | | |
|---|--|--|----------------------------------|---------------------------|----------------------------------|------------------------------|---------------------------|-------------------------|------------------------------|-------------------|--------------|
| Location: Nuclear Reactor Inside | | RWP/WP | Survey #: UVA-FS-079 | | Survey Type: Final Status Survey | | | Page 1 of 3 | | | |
| Comments: Reactor Pool south end soil sample after drilling new locations. Survey Unit 55 Final Status Addendum 007 | | Surveyed By: Brad Myers Alice Thompson Frank Myers | Date: 08/13/03 08/13/03 08/13/03 | Instrument: M-2221 M-2221 | Serial #: 172051 184010 | Cal. Due: 4/2/2004 3/24/2004 | Probe/Area: 43-68 128 n/a | Serial #: 116718 150873 | Cal. Due: 4/2/2004 3/24/2004 | β Eff.: 0.107 n/a | Max β Bkg Lc |

Key: = Smeanxxx to xy = Direct Frisk | = air sample | B = beta dose rate in mRad/h | -X-X- = Boundary | SOP = Step Off Pad | xy = contact/12" dose rate | # = General dose rate

| Gamma Scans | | | Static Count β | | | | Coordinates | | | Down Hole Gamma Log | | |
|-------------|---------|----------|----------------|-------------------|-------|-----|-------------|-------|------|---------------------|---------|-------|
| No. | Pre CPM | Post CPM | No. | Unsh/Shielded CPM | Net | Lc | No. | north | east | elevation | Depth | CPM |
| 1 | 17532 | 18952 | 1 | 500 317 | 1,357 | 308 | 1 | 0.75 | 3 | 0 | | |
| 2 | 34321 | 4095 | 2 | 549 317 | 1,721 | 308 | 2 | 0.5 | 3 | 0 | | |
| 2 | n/a | n/a | 2 | 60 30 | 223 | 95 | 2 | 0.5 | 3 | 0 | | |
| 3 | 15941 | 20429 | 3 | 468 317 | 1,105 | 308 | 3 | 1 | 1 | 0 | | |
| 4 | 13512 | 26725 | 4 | 518 317 | 1,478 | 308 | 4 | 3.5 | 0.3 | 0 | | |
| 5 | 13456 | 15125 | 5 | 536 317 | 1,624 | 308 | 5 | 2 | 2 | 0 | | |
| 6 | 15161 | 18253 | 6 | 515 317 | 1,469 | 308 | 6 | 0.1 | 2 | 0 | | |
| 7 | n/a | n/a | 7 | 557 317 | 1,780 | 308 | 7 | -0.1 | 2 | 0 | | |
| 7 | 24993 | 32767 | 7 | 60 30 | 223 | 95 | 7 | -0.1 | 2 | 0 | | |
| 8 | na | n/a | 8 | 109 50 | 438 | 122 | 8 | 4 | 3.7 | 0 | opening | 14053 |
| 8 | n/a | n/a | 8 | 145 40 | 779 | 109 | 8 | 4 | 3.7 | 0 | 1 meter | 19828 |
| 8 | n/a | n/a | 8 | 115 50 | 482 | 122 | 8 | 4 | 3.7 | 0 | 2 meter | 21462 |
| 8 | n/a | n/a | 8 | 115 50 | 482 | 122 | 8 | 4 | 3.7 | 0 | 3 meter | 19355 |
| 9 | n/a | n/a | 9 | 85 44 | 304 | 115 | 9 | 1.2 | 1.2 | 0 | opening | 9518 |
| 9 | n/a | n/a | 9 | 111 44 | 497 | 115 | 9 | 1.2 | 1.2 | 0 | 1 meter | 7973 |
| 9 | n/a | n/a | 9 | 91 44 | 349 | 115 | 9 | 1.2 | 1.2 | 0 | 2 meter | 10411 |
| 9 | n/a | n/a | 9 | 104 44 | 445 | 115 | 9 | 1.2 | 1.2 | 0 | 3 meter | 12028 |
| 9 | n/a | n/a | 9 | 40 60 | -148 | 134 | 9 | 1.2 | 1.2 | 0 | | |
| 10 | n/a | n/a | 10 | 118 50 | 504 | 122 | 10 | 3.6 | 0.2 | 0 | opening | 5550 |
| 10 | n/a | n/a | 10 | 110 50 | 445 | 122 | 10 | 3.6 | 0.2 | 0 | 1 meter | 20662 |
| 10 | n/a | n/a | 10 | 101 50 | 378 | 122 | 10 | 3.6 | 0.2 | 0 | 2 meter | 19530 |
| 10 | n/a | n/a | 10 | 85 50 | 260 | 122 | 10 | 3.6 | 0.2 | 0 | 3 meter | 16147 |
| 11 | n/a | n/a | 11 | 81 55 | 193 | 128 | 11 | 7.8 | 0.5 | 0 | opening | 4284 |
| 11 | n/a | n/a | 11 | 98 55 | 319 | 128 | 11 | 7.8 | 0.5 | 0 | 1 meter | 5691 |
| 11 | n/a | n/a | 11 | 81 55 | 193 | 128 | 11 | 7.8 | 0.5 | 0 | 2 meter | 10489 |
| 11 | n/a | n/a | 11 | 83 55 | 208 | 128 | 11 | 7.8 | 0.5 | 0 | 3 meter | 10534 |
| 12 | n/a | n/a | 12 | 87 55 | 237 | 128 | 12 | 5.2 | 2.2 | 0 | | |

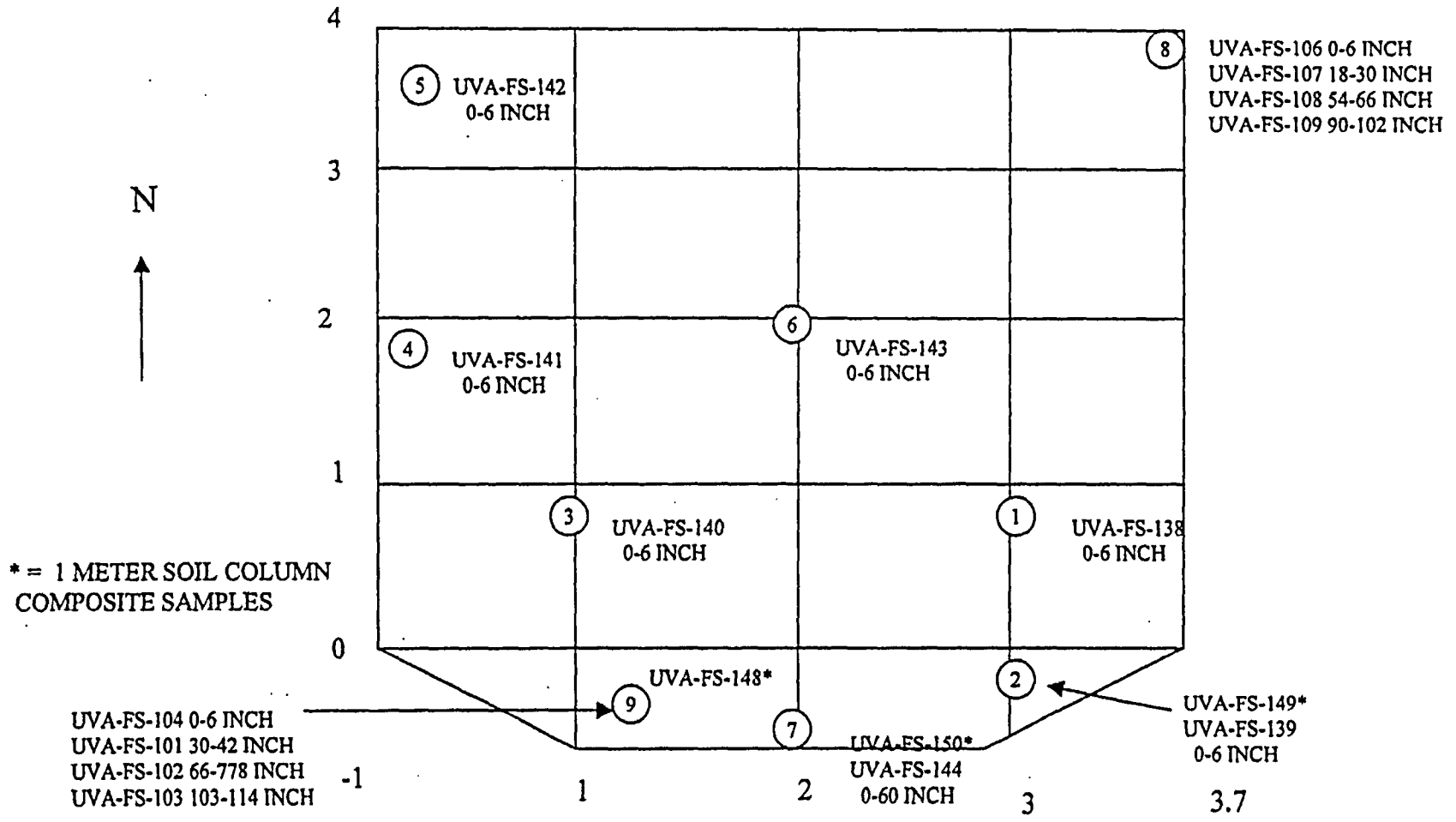
Reactor Pool Floor North Side 1 meter grid

Z = 0



Reactor Pool Floor South Side 1 meter grid

Z = 0





UVAP

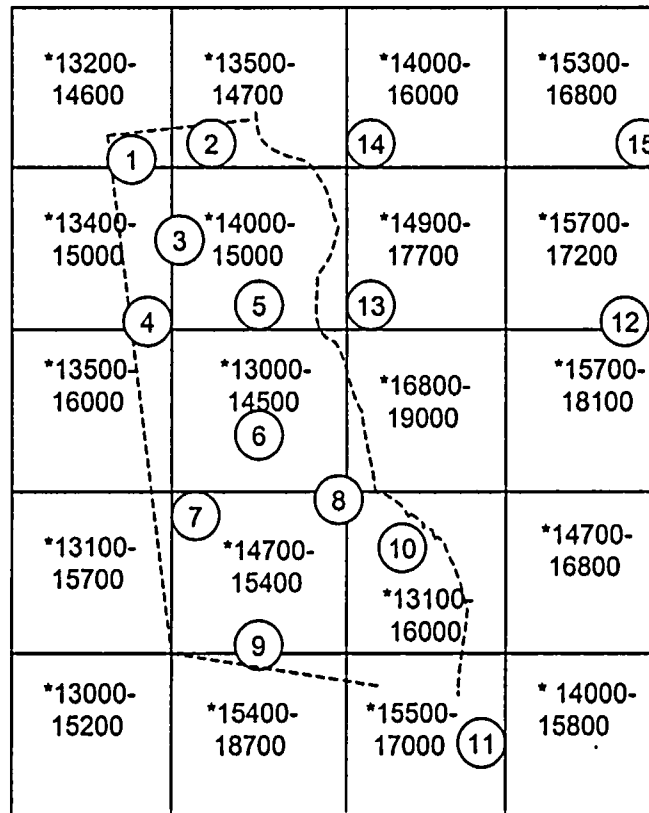
Radiological Survey Form

| | | | | |
|--|----------------|------------|---------------------|--------------|
| Location: | RWP/WP | Survey # | Survey Type: | Page 1 of 2 |
| Nuclear Reactor Inside | | UVA-FS-080 | Final Status Survey | |
| Comments: | Surveyed By: | Date: | Instrument | Serial # |
| Final Status Survey of Asphalt Pad outside Roll door by Reactor Containment. | Alice Thompson | 09/04/03 | M-2221 | 172051 |
| | | | | |
| Survey Unit 61 | | | | |
| Final Status Survey Addendum 005 | Reviewed By: | Date: | Cal. Due | Probe Area |
| | Frank Myers | 09/08/03 | 9/2/2004 | 43-68 126 |
| | | | 6/2/2004 | 44-10 n/a |
| | | | | 199130 |
| | | | | 6/2/2004 |
| | | | | β Eff. |
| | | | | 0.109 |
| | | | | Max β Bkg Lc |
| | | | | 441 |

Key: ○ = Smear xxx to xxx = Direct Frisk △ = air sample B = beta dose rate in mRad/h --X--X-- = Boundary SOP = Step Off Pad x/y = contact/12" dose rate # = General dose rate

| Smears | | | | Static Count β | | | | Coordinates | | | | | |
|--------|-----------|---|------------------------|----------------|-----|---------------|-----|-------------|-----|-------|------|-----------|---|
| No. | Gross CPM | | DPM/100cm ² | | No. | Unsh/Shielded | | | No. | North | East | Elevation | |
| | α | β | α | β | | CPM | Net | Lc | | | | | |
| 1 | See | | | | 1 | 940 | 675 | 1,930 | 441 | 1 | 4.5 | 1.9 | 0 |
| 2 | Attached | | | | 2 | 809 | 609 | 1,456 | 419 | 2 | 4.5 | 2.5 | 0 |
| 3 | Report | | | | 3 | 774 | 488 | 2,082 | 375 | 3 | 3.9 | 2.2 | 0 |
| 4 | | | | | 4 | 977 | 501 | 3,466 | 380 | 4 | 3.5 | 1.8 | 0 |
| 5 | | | | | 5 | 732 | 417 | 2,294 | 346 | 5 | 3.7 | 1.9 | 0 |
| 6 | | | | | 6 | 812 | 492 | 2,330 | 376 | 6 | 2.8 | 1.5 | 0 |
| 7 | | | | | 7 | 906 | 504 | 2,927 | 381 | 7 | 1.9 | 1 | 0 |
| 8 | | | | | 8 | 930 | 525 | 2,949 | 389 | 8 | 2 | 1.9 | 0 |
| 9 | | | | | 9 | 864 | 466 | 2,898 | 366 | 9 | 1 | 1.5 | 0 |
| 10 | | | | | 10 | 825 | 550 | 2,730 | 398 | 10 | 1.6 | 2.7 | 0 |
| 11 | | | | | 11 | 923 | 563 | 2,621 | 403 | 11 | 9 | 2.9 | 0 |
| 12 | | | | | 12 | 833 | 537 | 2,883 | 393 | 12 | 2.6 | 4 | 0 |
| 13 | | | | | 13 | 1221 | 585 | 4,631 | 410 | 13 | 2.9 | 2.5 | 0 |
| 14 | | | | | 14 | 893 | 518 | 2,730 | 386 | 14 | 3.5 | 2.5 | 0 |
| 15 | | | | | 15 | 968 | 595 | 2,716 | 414 | 15 | 3.6 | 3.9 | 0 |
| QC | | | | | 16 | 925 | 525 | 2,912 | 389 | 16 | 3.6 | 3.9 | 0 |

Outside Roll-up Door Asphalt Pad



Survey # UVA-FS-078
 Meter # L2221 172051
 Probe # 43-68 160795
 Meter # L2221 *190191
 Probe # 44-10 *199130
 Date 9-4-03



UVAP

Radiological Survey Form

| Location: <u>LVA Reactor Pond</u> | | RWP# | Survey # | | Survey Type: <u>UVA</u> | | Page 1 of 23 | | | | | | | | | | |
|---|---------|----------------------------------|-----------------------|----------------------------------|-------------------------|---------------------------|----------------|--------------------|------------------------|---------------------------|----------------|---------------|---------------|--------------|-------------------------|------------------------|--|
| Comments: <u>All readings taken in 3 meter lanes.</u> | | Surveyed By: <u>M. J. Wright</u> | Date: <u>09-17-02</u> | Instrument: <u>2221</u> | Serial #: <u>152184</u> | Cal. Due: <u>09-05-02</u> | Probe: <u></u> | Area: <u></u> | Serial #: <u>PR145</u> | Cal. Due: <u>09-05-02</u> | α Eff.: | β Eff.: | α Bkg. | β Bkg. | α L _s | β L _s | |
| Reviewed By: <u>Frank Myers</u> | | Date: <u>9-18-02</u> | | | | | | | | | | | | | | | |
| Legend: \circ = Smear xxx to xxx = Direct Frisk | | Δ = air sample | | β = Beta dose rate mRad/hr | | -X-X- = Boundary | | SOP = Step Off Pad | | * = Contact | | # = General | | | | | |
| Smears | | | | Direct Frisk | | | | Description | | | | | | | | | |
| Gross CPM | | DPM/100cm ² | | Gross CPM | | DPM/100cm ² | | | | | | | | | | | |
| α | β | α | β | No. | α | β | | | | | | | | | | | |
| | | | | 1 | | | | Surface Gamma Scan | | | | | | | | | |
| | | | | 2 | | | | | | | | | | | | | |
| | | | | 3 | | | | | | | | | | | | | |
| | | | | 4 | | | | | | | | | | | | | |
| | | | | 5 | | | | | | | | | | | | | |
| | | | | 6 | | | | | | | | | | | | | |
| | | | | 7 | | | | | | | | | | | | | |
| | | | | 8 | | | | | | | | | | | | | |
| | | | | 9 | | | | | | | | | | | | | |
| | | | | 10 | | | | | | | | | | | | | |
| | | | | 11 | | | | | | | | | | | | | |
| | | | | 12 | | | | | | | | | | | | | |
| | | | | 13 | | | | | | | | | | | | | |
| | | | | 14 | | | | | | | | | | | | | |
| | | | | 15 | | | | | | | | | | | | | |
| | | | | 16 | | | | | | | | | | | | | |
| | | | | 17 | | | | | | | | | | | | | |
| | | | | 18 | | | | | | | | | | | | | |
| | | | | 19 | | | | | | | | | | | | | |
| | | | | 20 | | | | | | | | | | | | | |
| | | | | OC | | | | | | | | | | | | | |
| | | | | 21 | | | | | | | | | | | | | |
| | | | | 22 | | | | | | | | | | | | | |
| | | | | 23 | | | | | | | | | | | | | |
| | | | | 24 | | | | | | | | | | | | | |
| | | | | 25 | | | | | | | | | | | | | |
| | | | | 26 | | | | | | | | | | | | | |
| | | | | 27 | | | | | | | | | | | | | |
| | | | | 28 | | | | | | | | | | | | | |
| | | | | 29 | | | | | | | | | | | | | |
| | | | | 30 | | | | | | | | | | | | | |
| | | | | 31 | | | | | | | | | | | | | |
| | | | | 32 | | | | | | | | | | | | | |
| | | | | 33 | | | | | | | | | | | | | |
| | | | | 34 | | | | | | | | | | | | | |
| | | | | 35 | | | | | | | | | | | | | |
| | | | | 36 | | | | | | | | | | | | | |
| | | | | 37 | | | | | | | | | | | | | |
| | | | | 38 | | | | | | | | | | | | | |
| | | | | 39 | | | | | | | | | | | | | |
| | | | | 40 | | | | | | | | | | | | | |

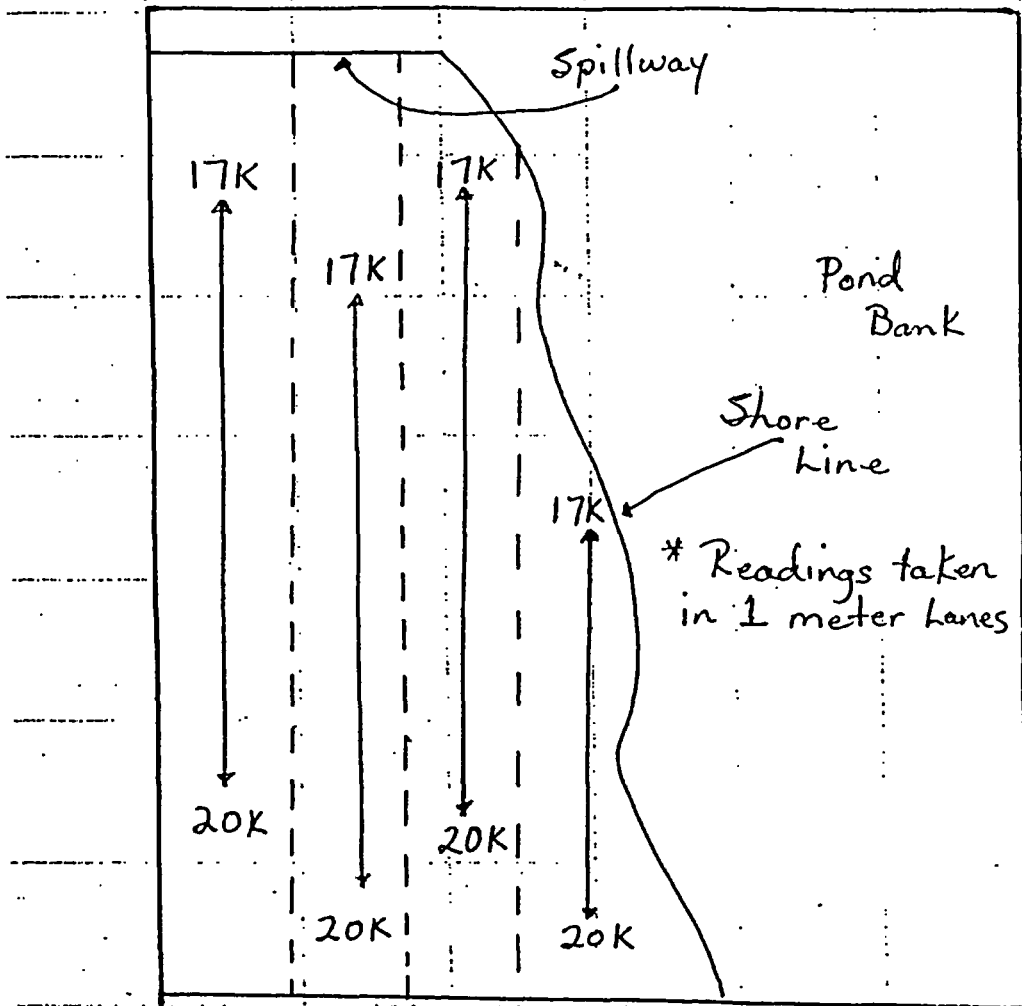


CALCULATION SHEET

DATE 09-19-02

DESIGNED BY Michael T. Wright DATE 09-17-02 CHECKED BY _____ SHEET NO. 1
PROJECT UVA - Characterization of Pond Sediments JOB NO. _____
SUBJECT Surface Gramma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 1





CALCULATION SHEET

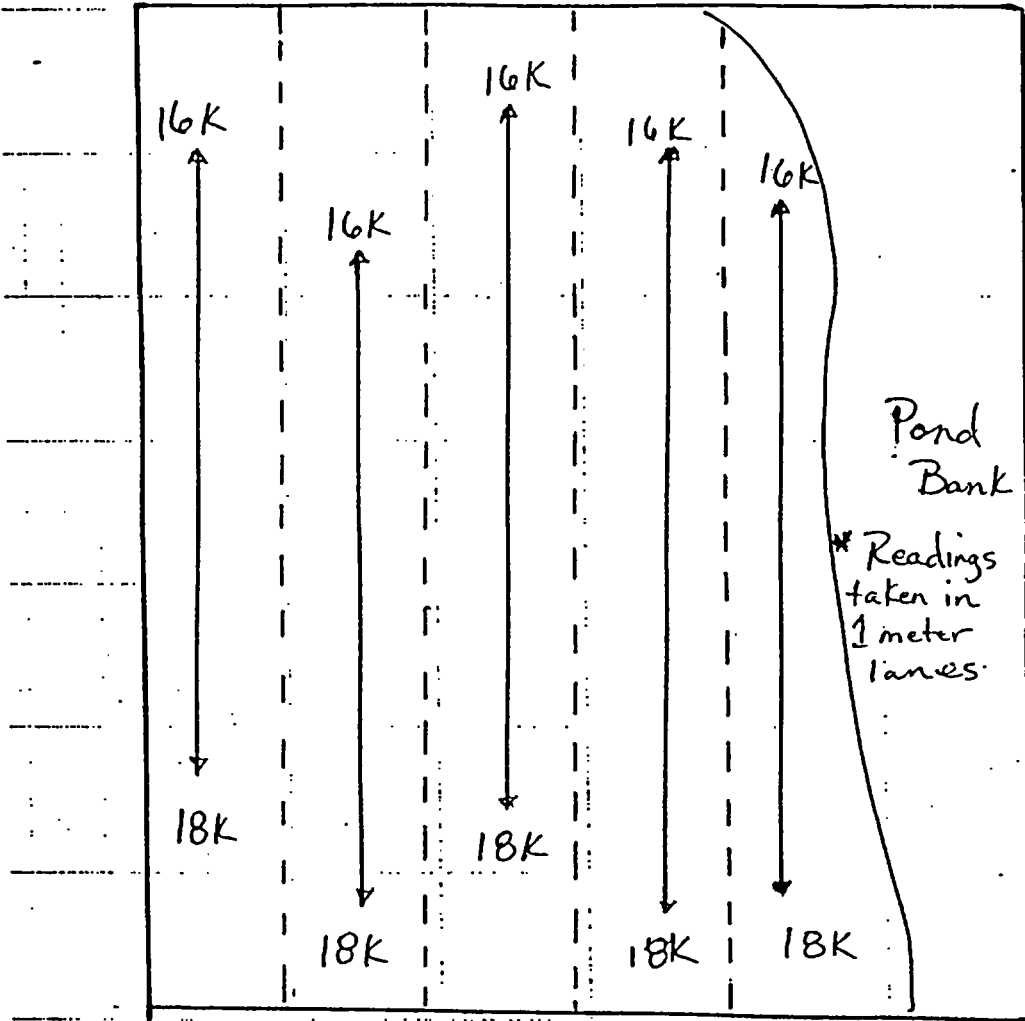
DATE 09-19-02

DESIGNED BY Michael T. Hright DATE 09-17-02 CHECKED BY _____ SHEET NO. 2

PROJECT UVA - Characterization of Pond Sediments JOB NO. _____

SUBJECT Surface Gamma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 2



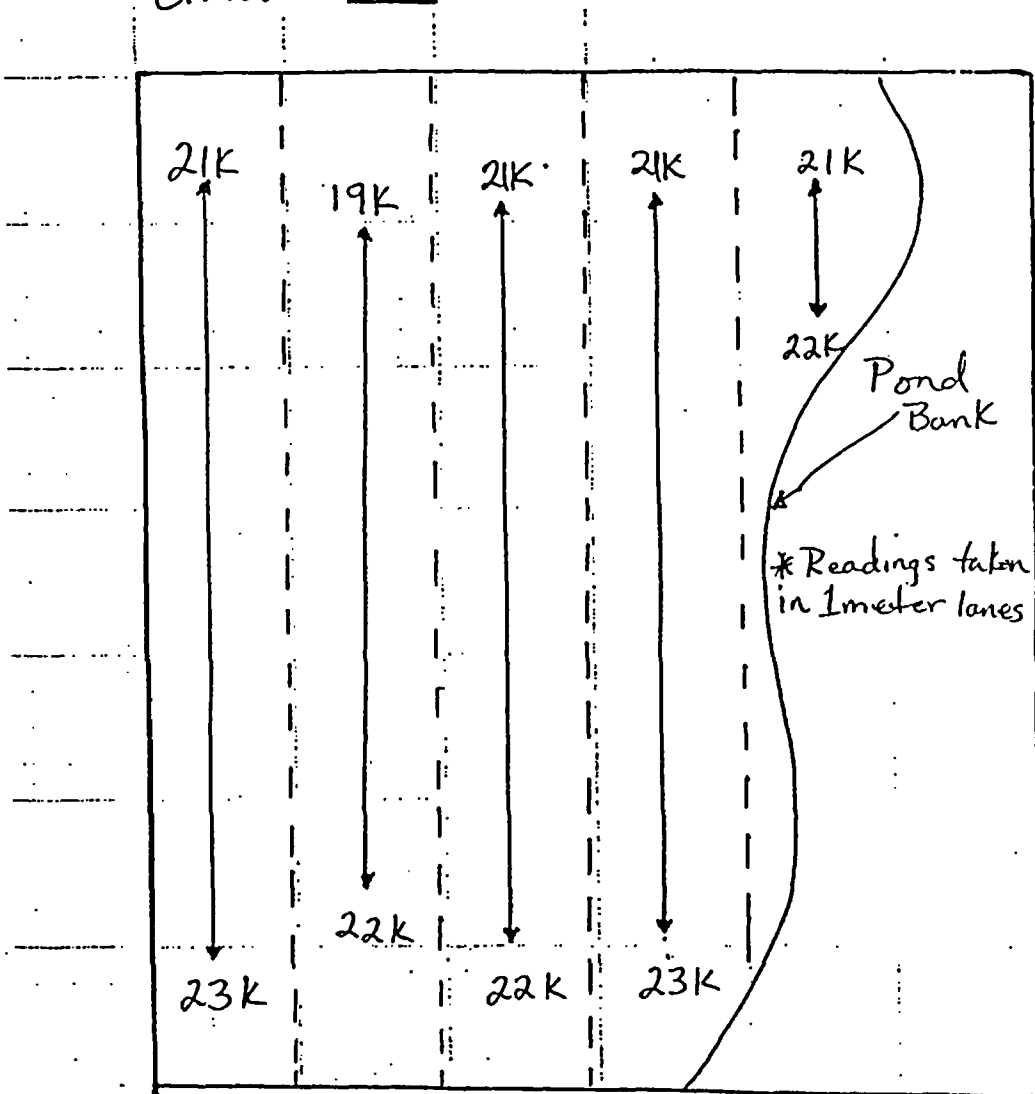


CALCULATION SHEET

DATE 09-19-02

DESIGNED BY Michael T. Wright DATE 09-17-02 CHECKED BY _____ SHEET NO. 3
PROJECT UVA Characterization of Pond Sediments JOB NO. _____
SUBJECT Surface Gamma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 3





CALCULATION SHEET

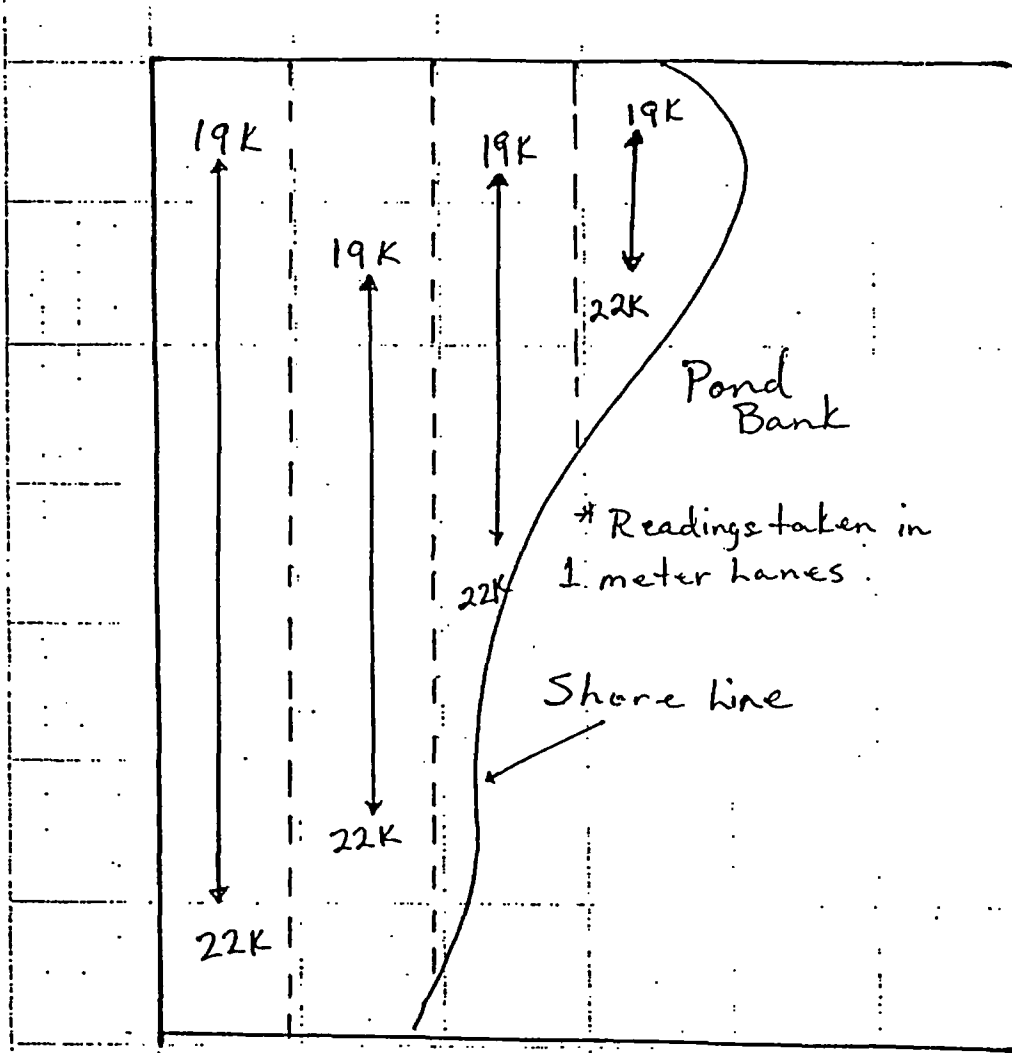
DATE 09-19-02

DESIGNED BY Michael T. Wright DATE 09-17-02 CHECKED BY _____ SHEET NO. 4

PROJECT UVA - Characterization of Pond Sediments JOB NO. _____

SUBJECT Surface Gamma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 4



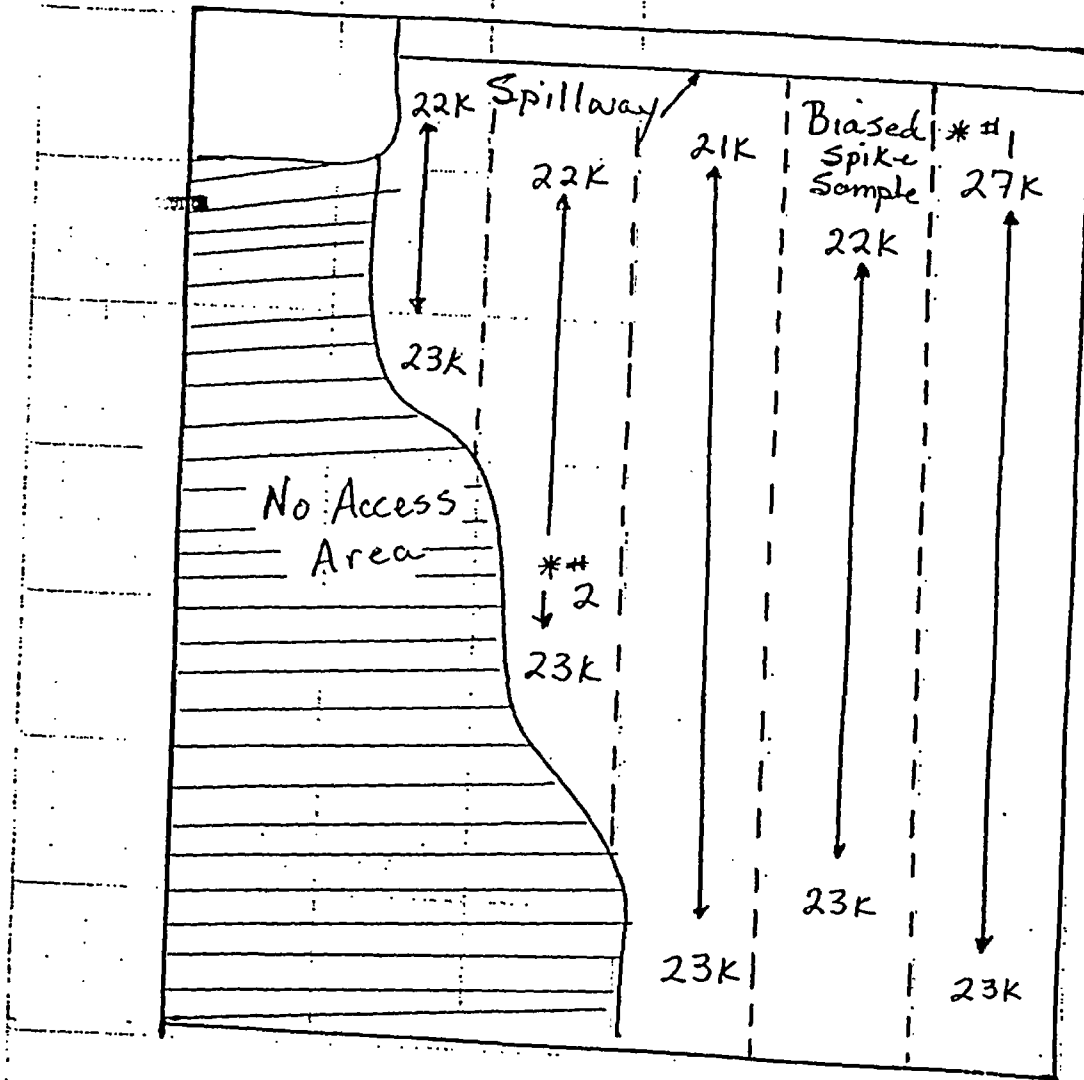


CALCULATION SHEET

DESIGNED BY Michael T. Hright DATE 09-17-02 CHECKED BY _____
PROJECT UVA - Characterization of Pond Sediments SHEET NO. 5
SUBJECT Surface Gramma Scan CALCULATION NO. _____ JOB NO. _____
FILE NO. _____

Grid # 5

* Readings taken in
1 meter lanes





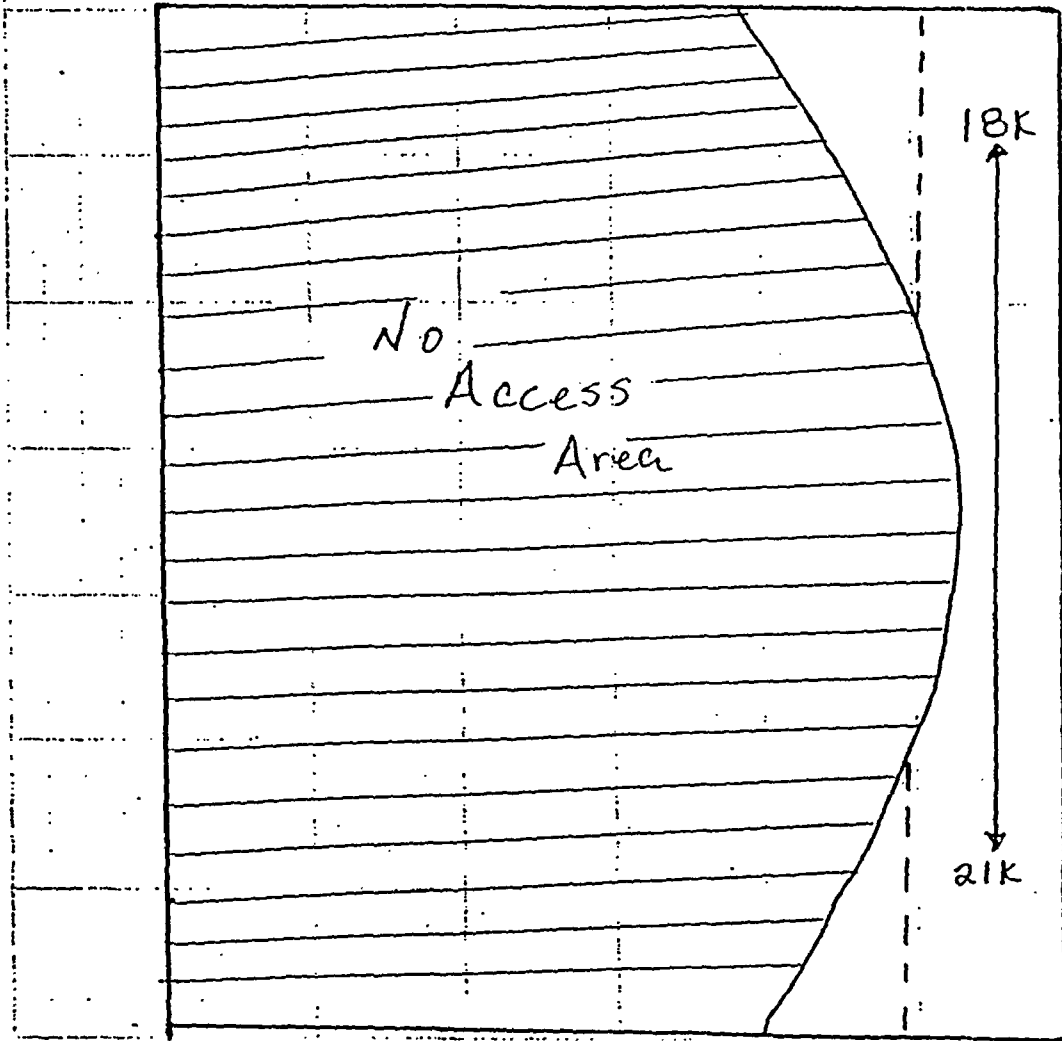
CALCULATION SHEET

DATE 09-19-02

DESIGNED BY Michael T. Wright DATE 09-17-02 CHECKED BY _____ SHEET NO. 6
PROJECT UVA - Characterization of Pond Sediments JOB NO. _____
SUBJECT Surface Gamma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 6

* Readings taken in
1 meter lanes





CALCULATION SHEET

DATE 09-19-02

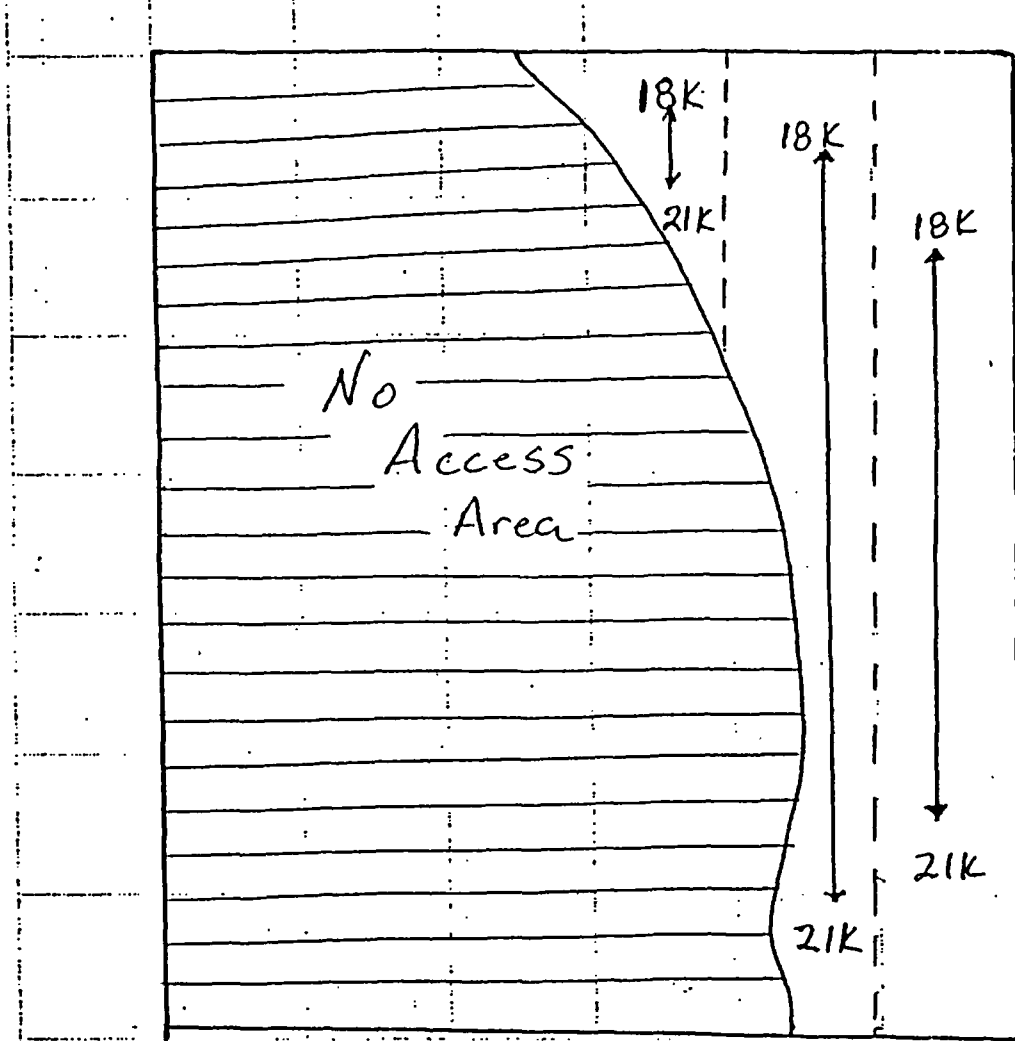
DESIGNED BY Michael J. Wright DATE 09-17-02 CHECKED BY _____ SHEET NO. 7

PROJECT UVA - Characterization of Pond Sediments JOB NO. _____

SUBJECT Surface Gramma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 7

* Readings taken in 1 meter lanes





CALCULATION SHEET

DATE 09-19-02

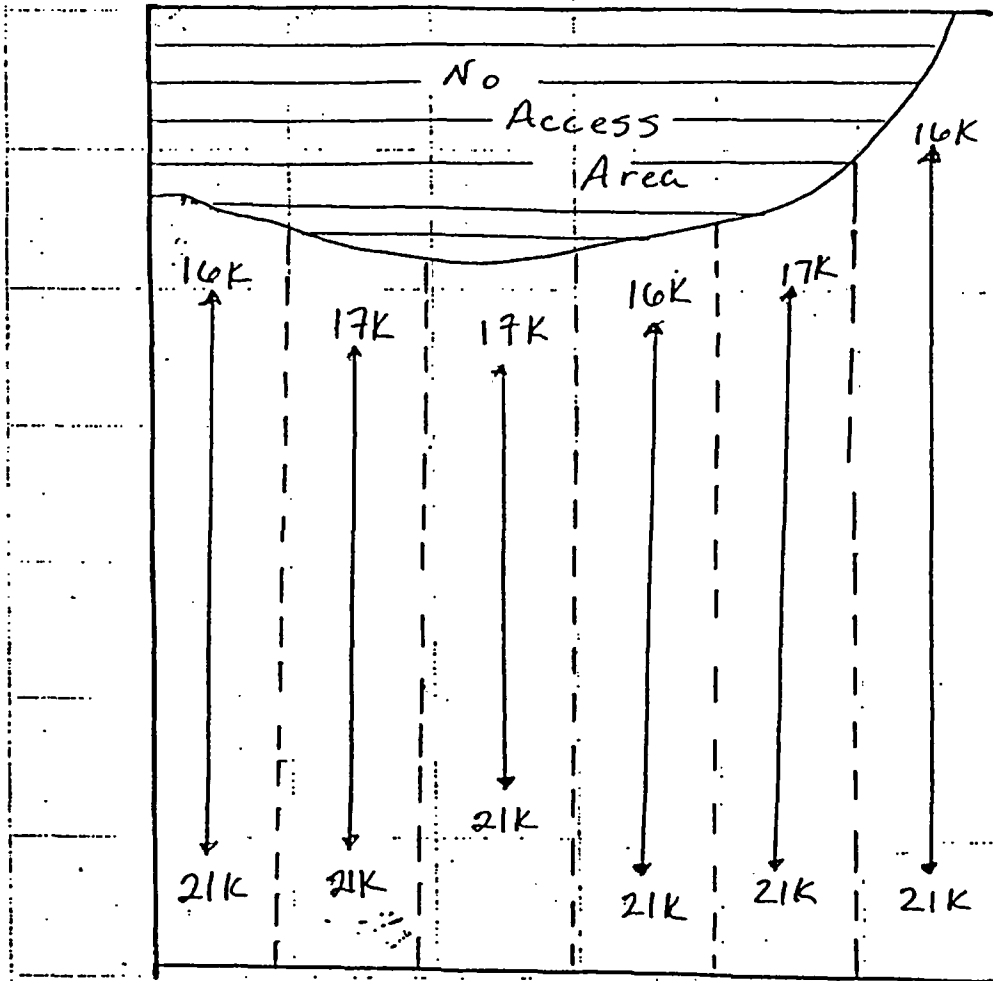
DESIGNED BY Michael T. Wright DATE 09-17-02 CHECKED BY _____ SHEET NO. 8

PROJECT UVA - Characterization of Pond Sediments JOB NO. _____

SUBJECT Surface Gamma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 8

* Readings taken in 1 meter lanes





CALCULATION SHEET

DATE 09-19-02

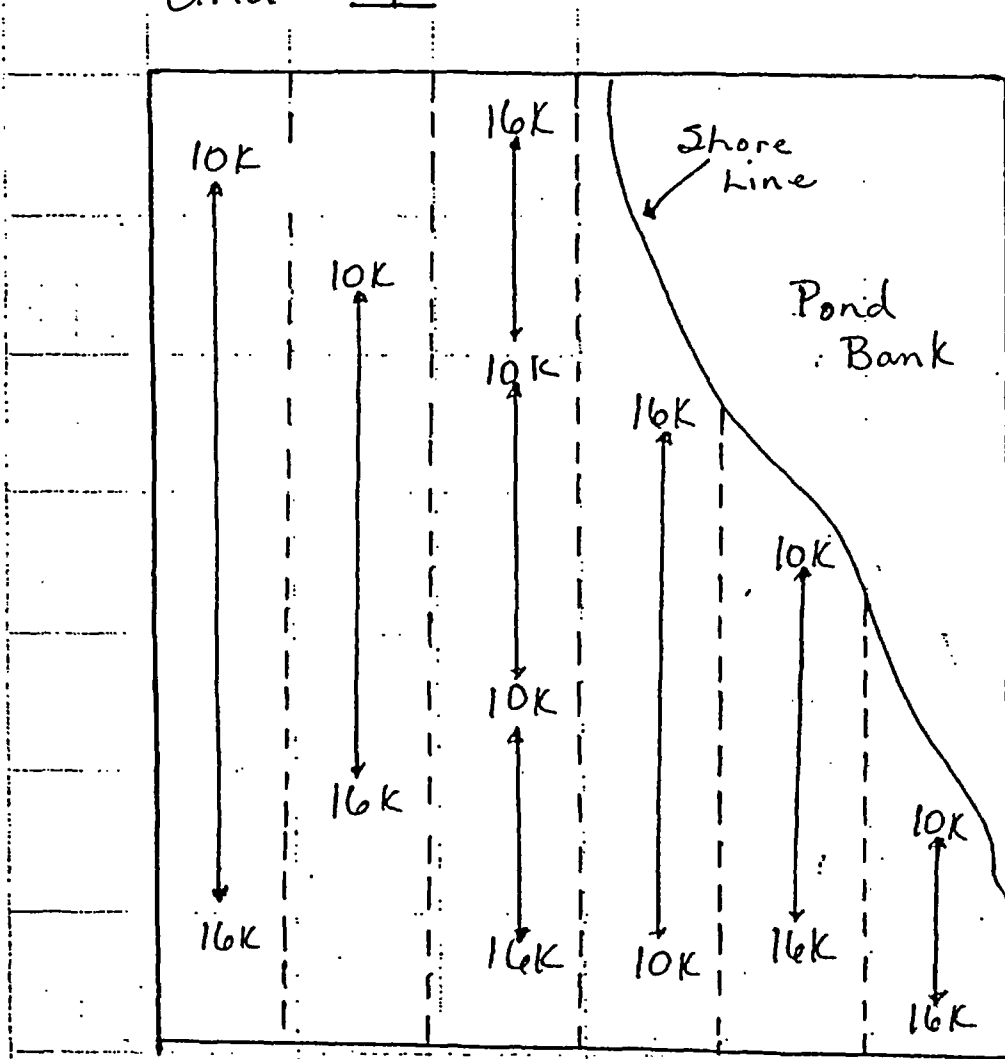
DESIGNED BY Michael T. Hright DATE 09-17-02 CHECKED BY _____ SHEET NO. 9

PROJECT UVA-Characterization of Pond Sediments JOB NO. _____

SUBJECT Surface Gamma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 9

* Readings taken 1 meter lanes





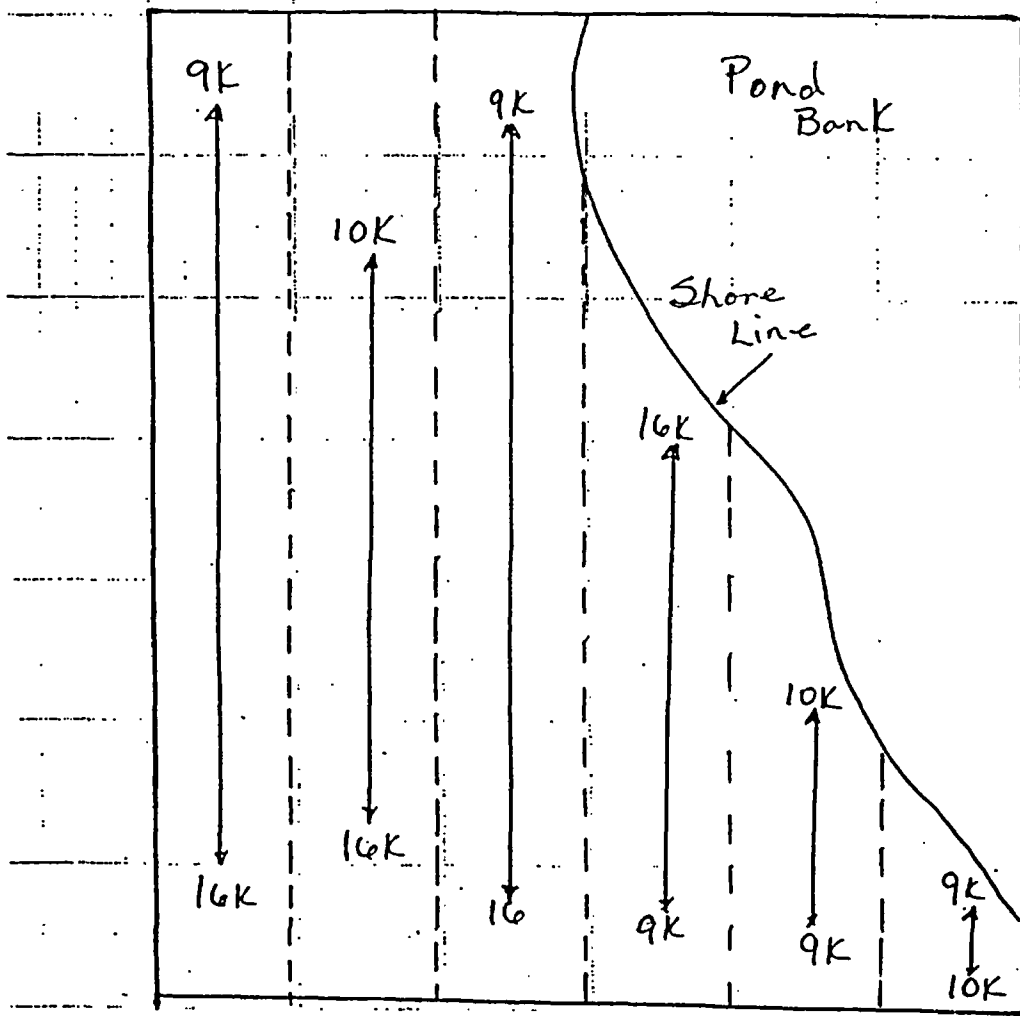
CALCULATION SHEET

DATE 09-19-02

DESIGNED BY Michael J. Wright DATE 09-17-02 CHECKED BY _____ SHEET NO. 10
PROJECT UVA - Characterization of Pond Sediments JOB NO. _____
SUBJECT Surface Gamma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 10

*Readings taken in 1 meter lanes





CALCULATION SHEET

DATE 09-19-02

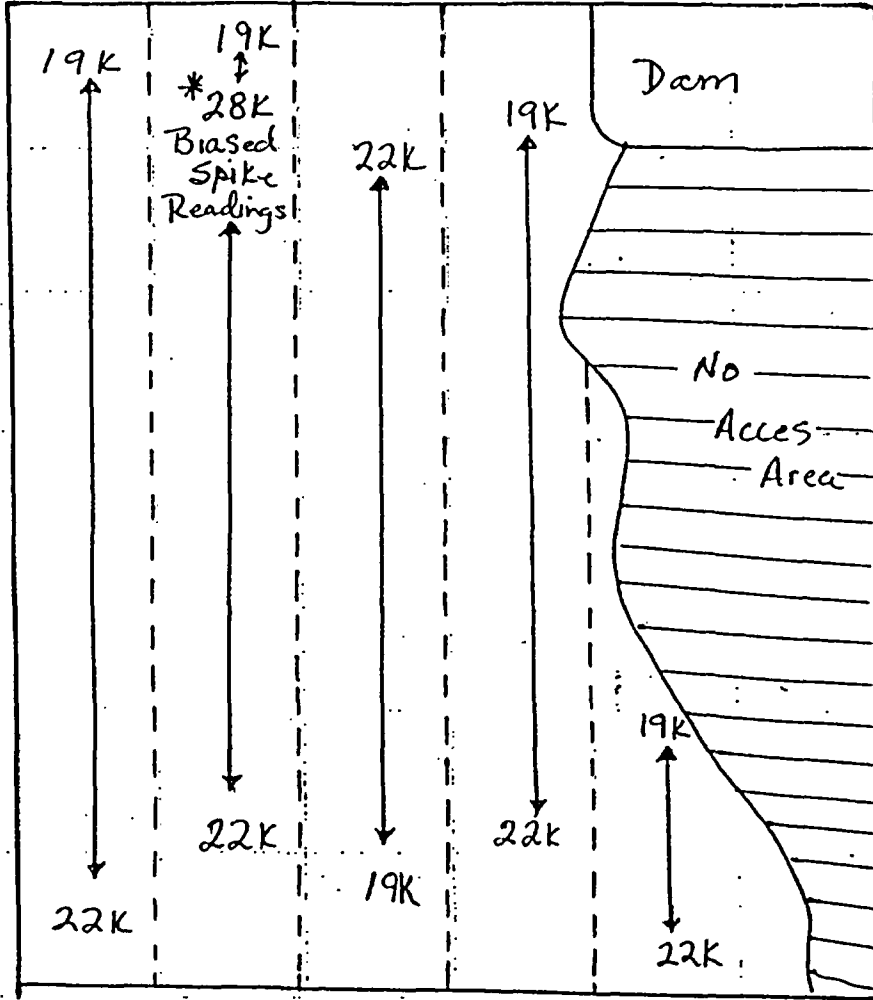
DESIGNED BY Michael T. Hright DATE 09-17-02 CHECKED BY _____ SHEET NO. 11

PROJECT UVA Characterization of Pond Sediments JOB NO. _____

SUBJECT Surface Gamma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 11

* Readings taken in 1 meter lanes





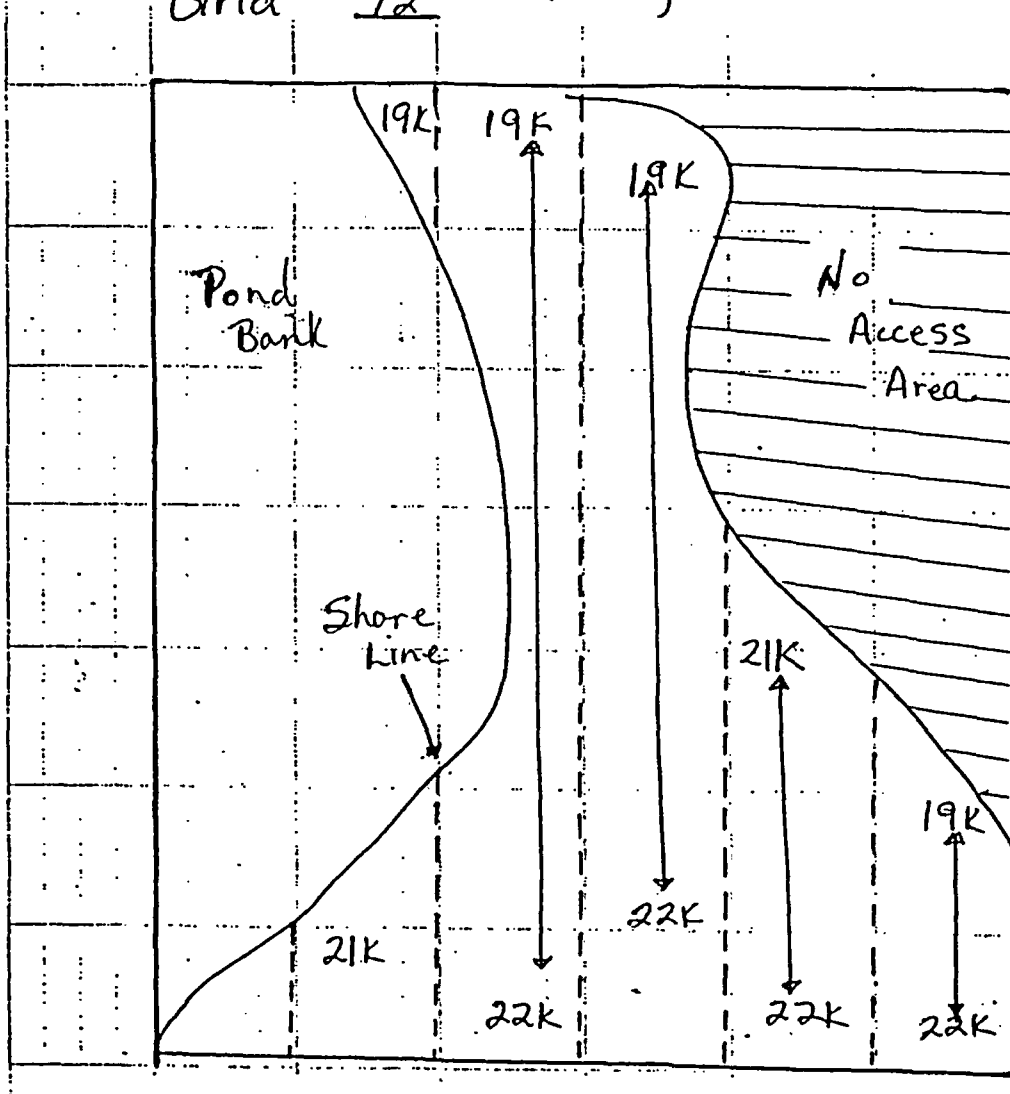
CALCULATION SHEET

DATE 09-19-02

DESIGNED BY Michael T. Wright DATE 09-17-02 CHECKED BY _____ SHEET NO. 1a
PROJECT UVA - Characterization of Pond Sediments JOB NO. _____
SUBJECT Surface Gamma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 12

*Readings taken in 1 meter lanes





CALCULATION SHEET

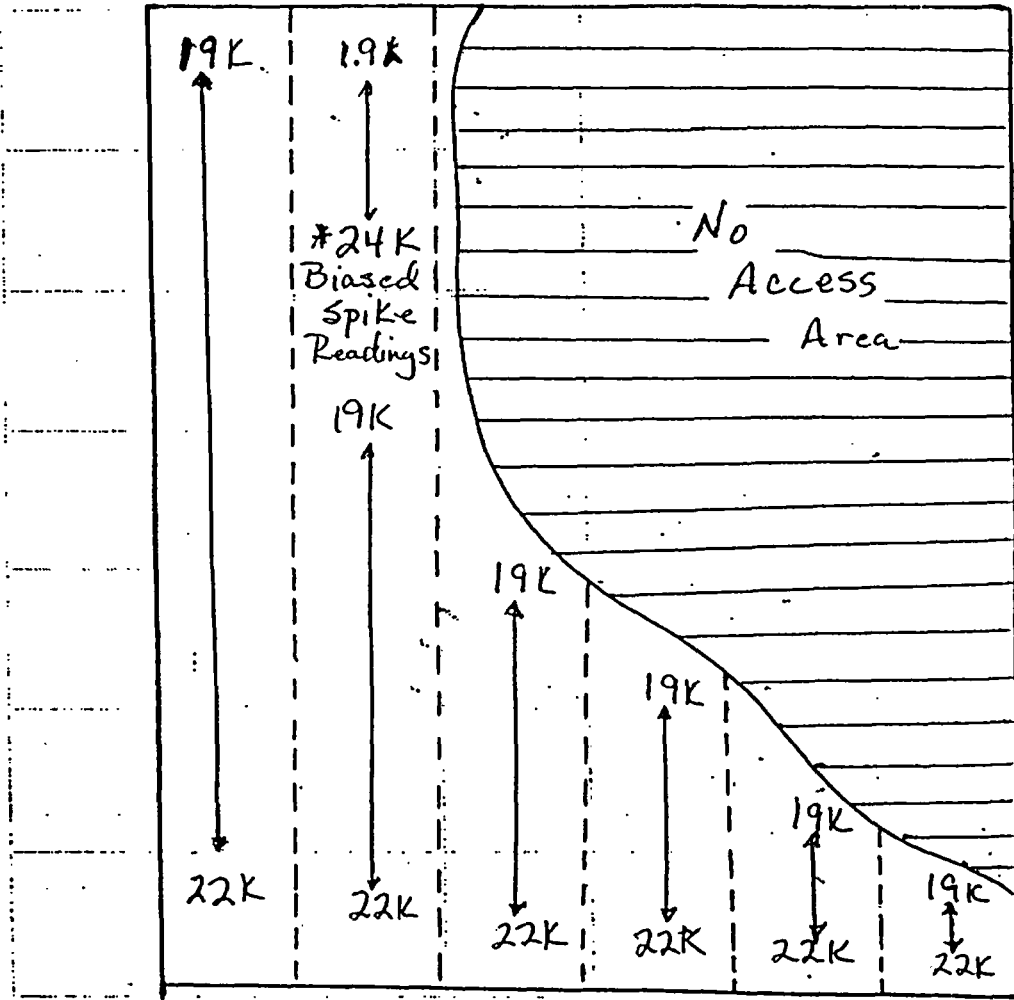
DATE 09-19-02

DESIGNED BY Michael T. Hright DATE 09-17-02 CHECKED BY _____ SHEET NO. 13

PROJECT UVA-Characterization of Pond Sediments JOB NO. _____

SUBJECT Surface Gramma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 13 * Readings taken in 1 meter lanes





CALCULATION SHEET

DATE 09-19-02

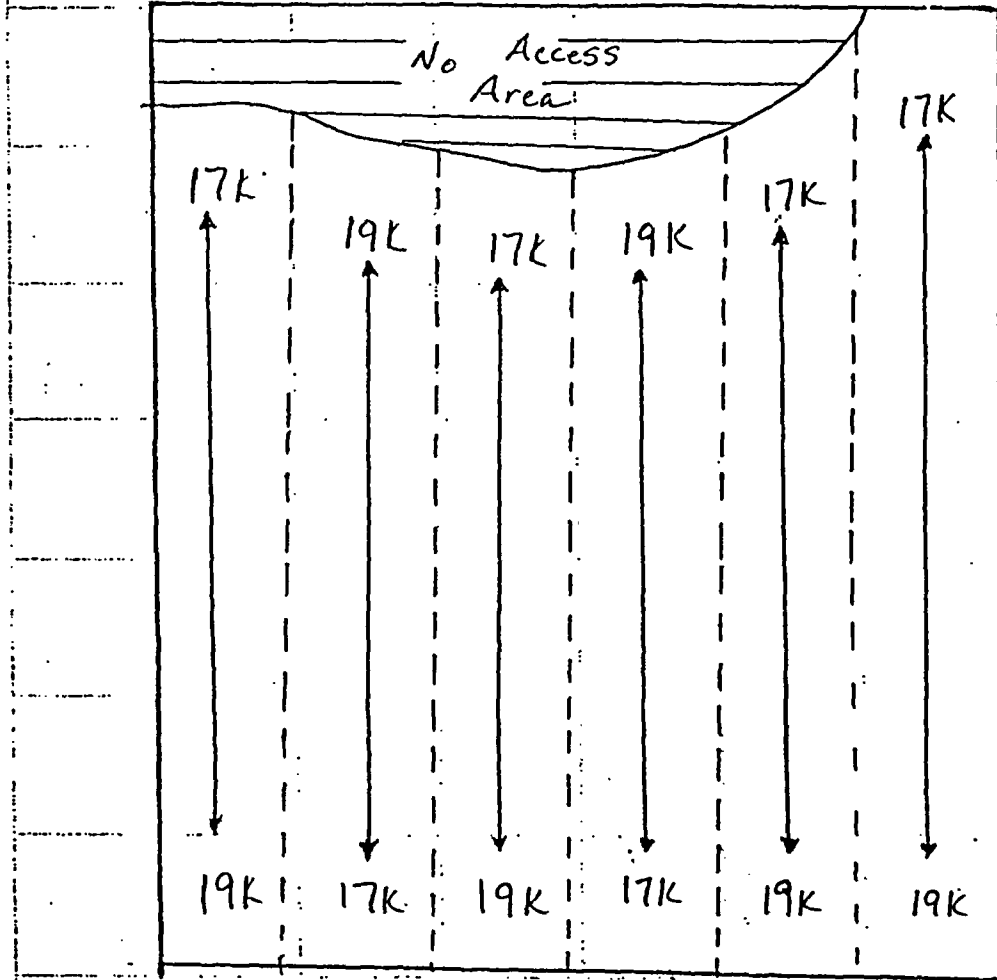
DESIGNED BY Michael T. Wright DATE 09-17-02 CHECKED BY _____ SHEET NO. 14

PROJECT UVA Characterization JOB NO. _____

SUBJECT Surface Gamma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 14

*Readings taken in Inner lanes





CALCULATION SHEET

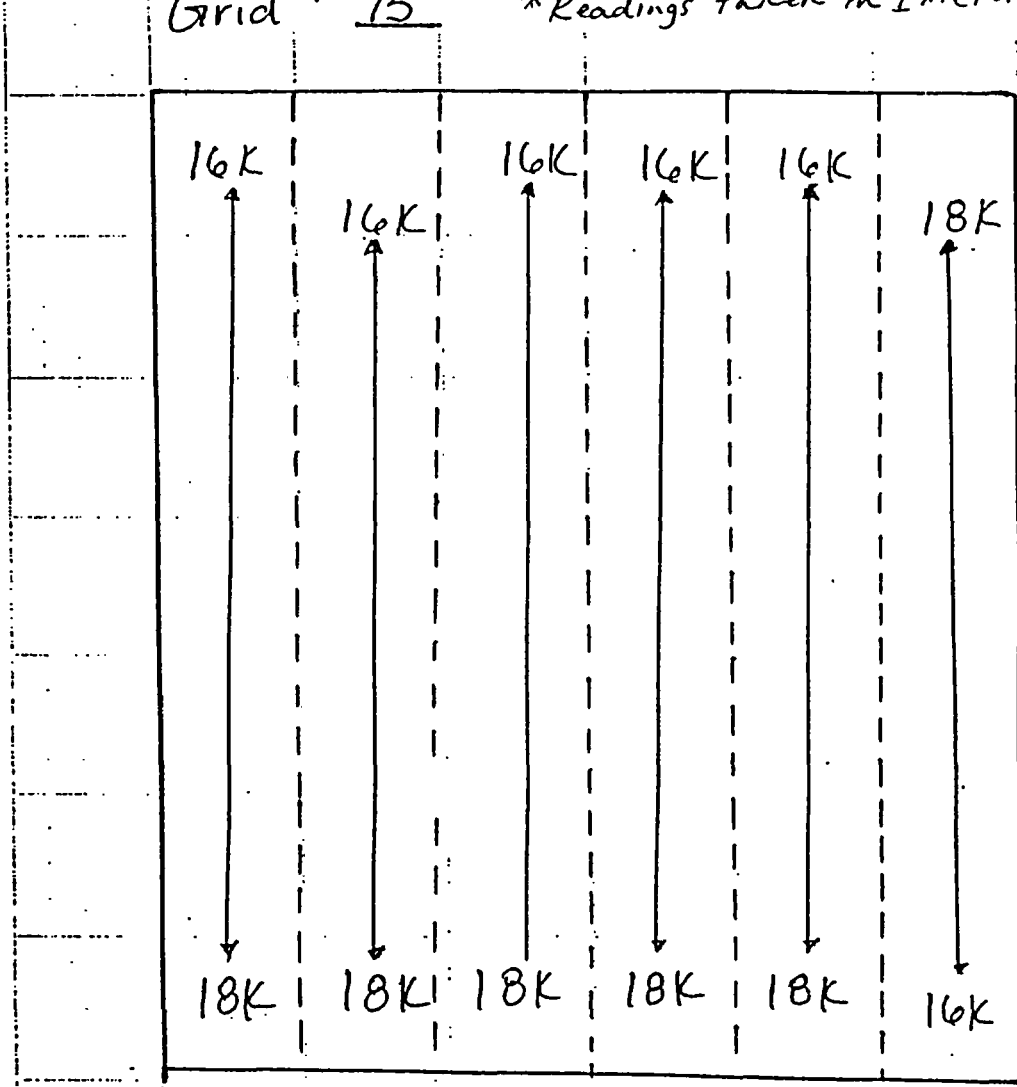
DATE 09-19-07

DESIGNED BY Michael T. Hight DATE 09-17-02 CHECKED BY _____ SHEET NO. 15

PROJECT RVA - Characterization of Pond Sediments JOB NO. _____

SUBJECT Surface Gamma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 15 *Readings taken in 1 meter lanes





CALCULATION SHEET

DATE 09-19-02

DESIGNED BY Michael Wright

DATE 09-17-02

CHECKED BY _____

SHEET NO. 16

PROJECT UVA - Characterization of Pond Sediments

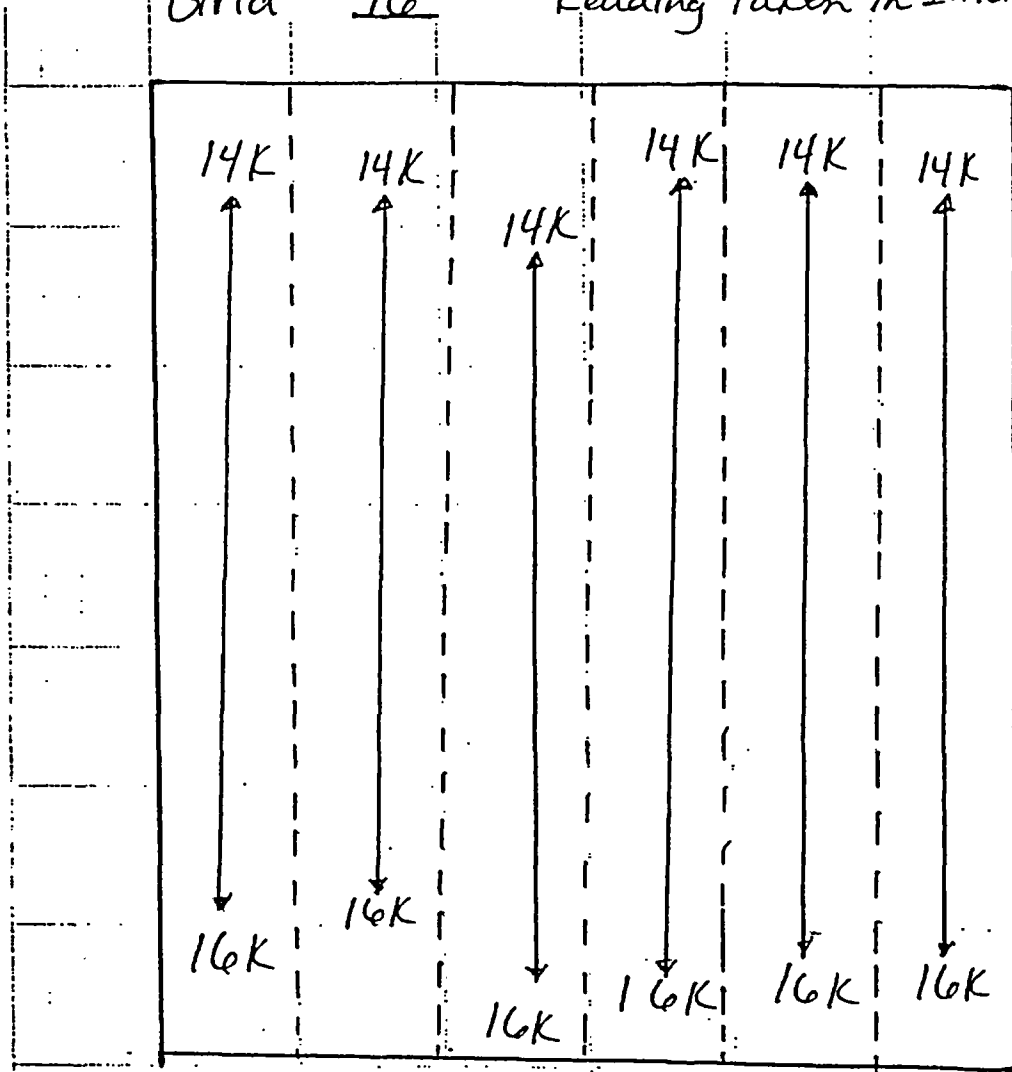
JOB NO. _____

SUBJECT Surface Gamma Scan

CALCULATION NO. _____

FILE NO. _____

Grid # 16 *Reading taken in 1 meter lanes





CALCULATION SHEET

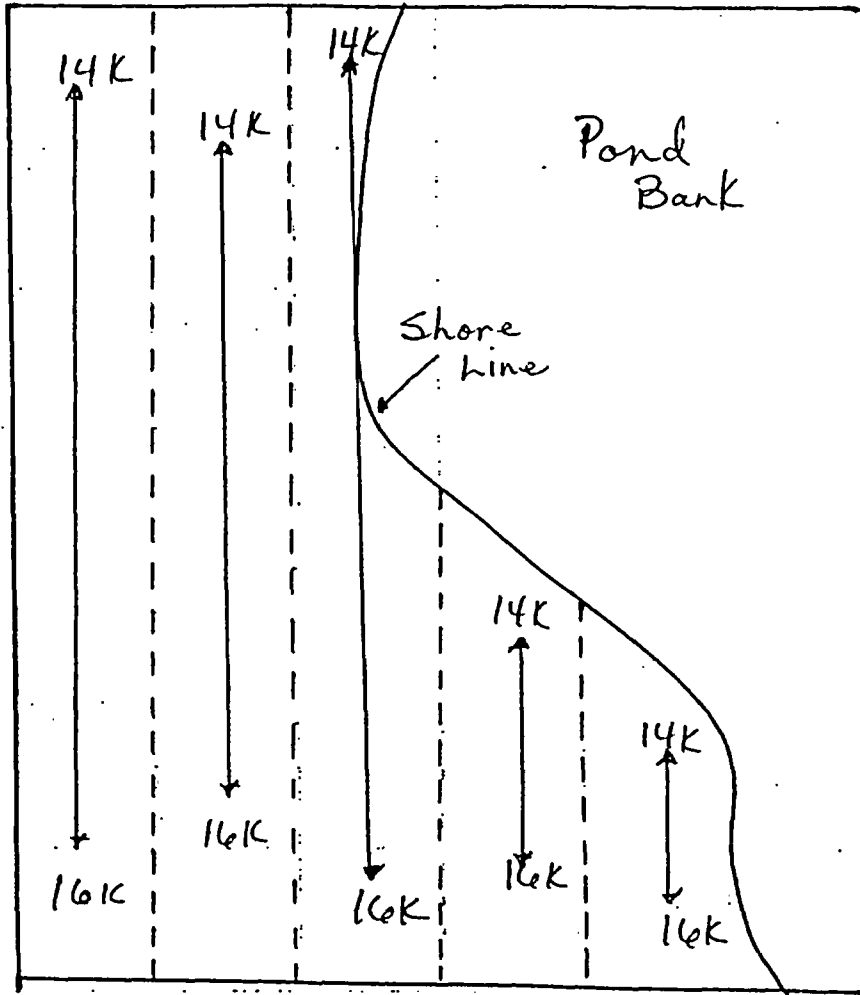
DATE 09-19-02

DESIGNED BY Michael T. Haight DATE 09-17-02 CHECKED BY _____ SHEET NO. 17

PROJECT UVA - Characterization of Pond Sediments JOB NO. _____

SUBJECT Surface Gamma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 17 * Readings taken in 1 meter lanes





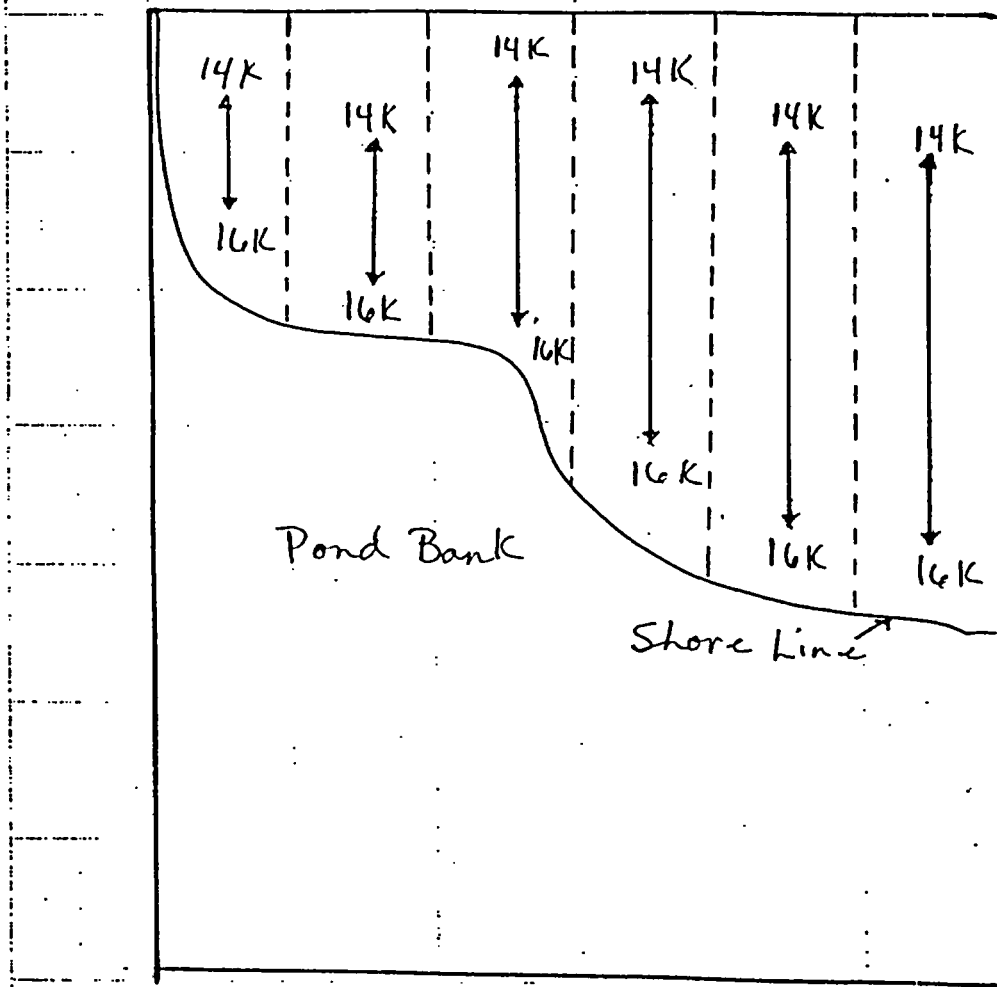
CALCULATION SHEET

DATE 09-19-02

DESIGNED BY Michael T. Hright DATE 09-17-02 CHECKED BY _____ SHEET NO. 18
PROJECT UVA-Characterization of Pond Sediments JOB NO. _____
SUBJECT Surface Gamma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 18

* Readings taken in 1 meter lanes



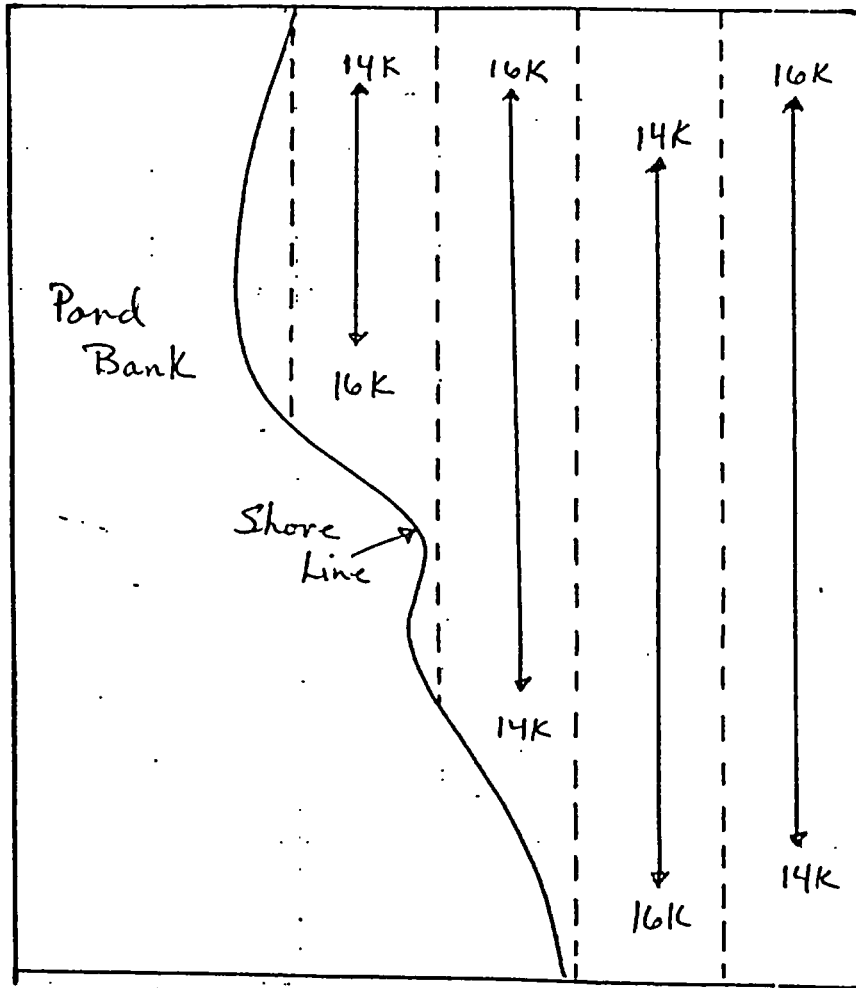


CALCULATION SHEET

DATE 09-19-02

DESIGNED BY Michael P. Wright DATE 09-17-02 CHECKED BY _____ SHEET NO. 19
PROJECT UVA - Characterization of Pond Sediments JOB NO. _____
SUBJECT Surface Gamma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 19 * Readings taken in 1 meter lanes





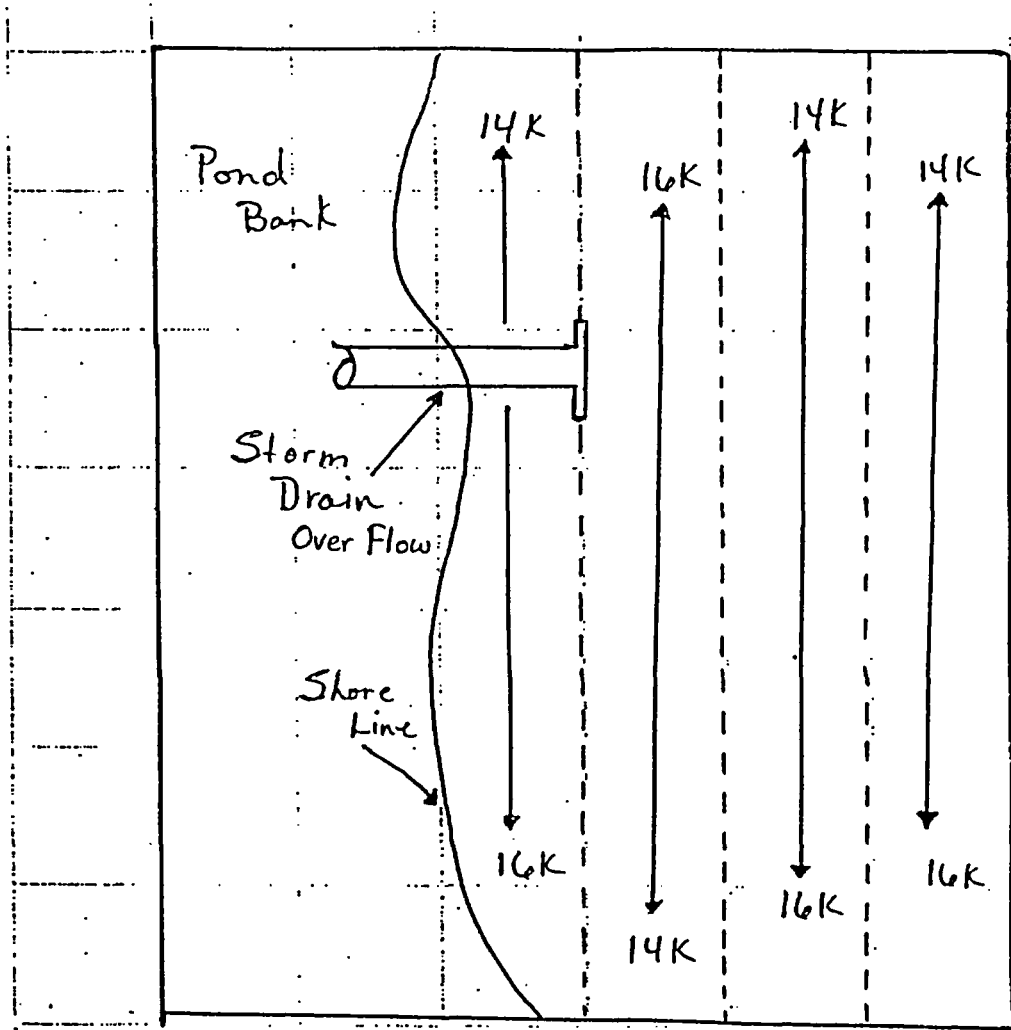
CALCULATION SHEET

DATE 09-19-02

DESIGNED BY Michael T. Hight DATE 09-17-02 CHECKED BY _____ SHEET NO. 20
PROJECT UVA - Characterization of Pond Sediments JOB NO. _____
SUBJECT Surface Gamma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 20

Readings taken in 1 meter lanes





CALCULATION SHEET

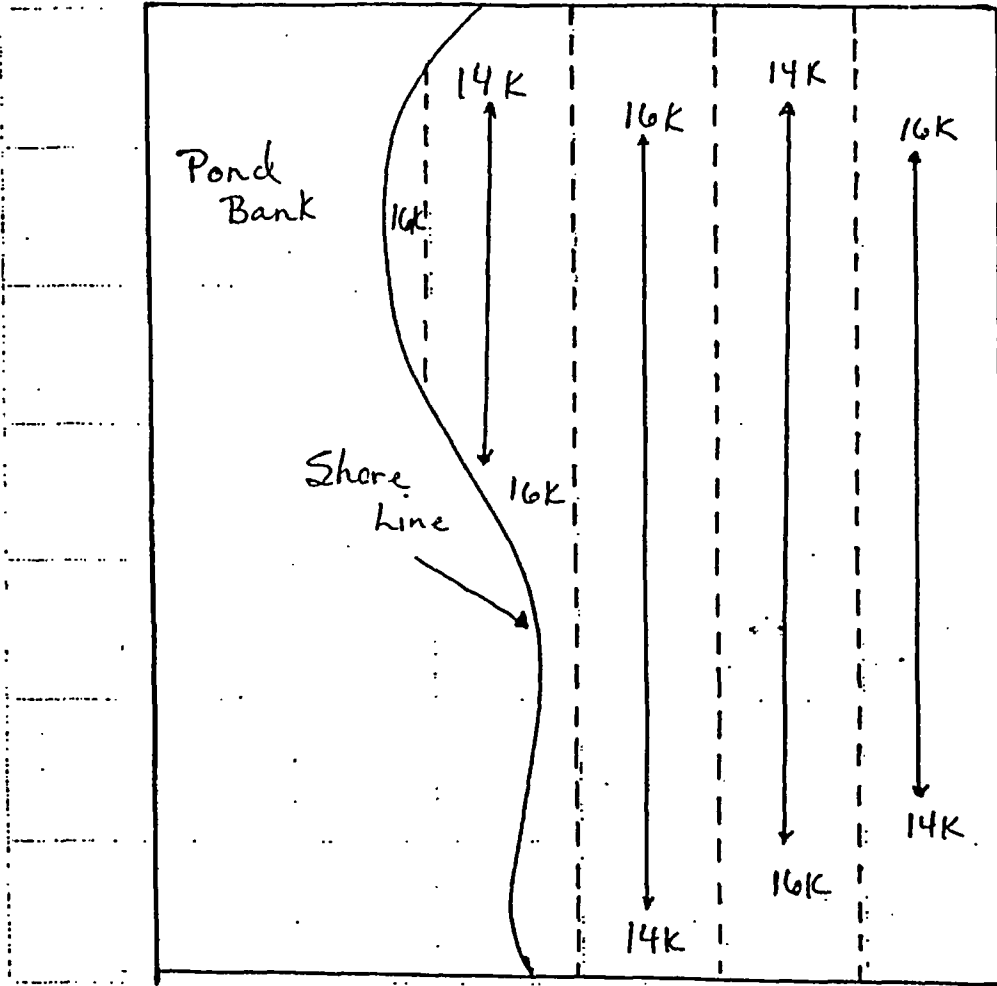
DATE 09-19-02

DESIGNED BY Michael T. Hight DATE 09-17-02 CHECKED BY _____ SHEET NO. 21

PROJECT UVA - Characterization of Pond Sediments JOB NO. _____

SUBJECT Surface Gamma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 21 * Readings taken in 1 meter lanes





CALCULATION SHEET

DATE 09-19-02

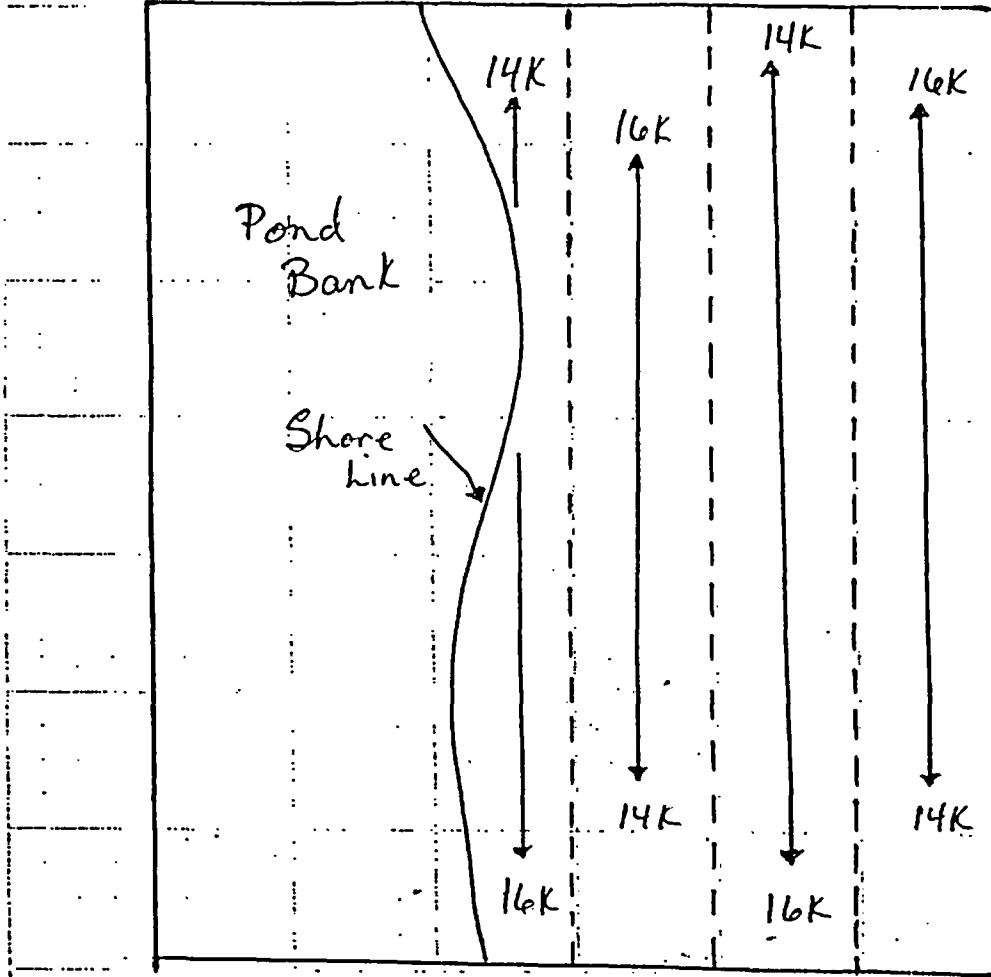
DESIGNED BY Michael Wright DATE 09-17-02 CHECKED BY _____ SHEET NO. 22

PROJECT UVA - Characterization of Pond Sediments JOB NO. _____

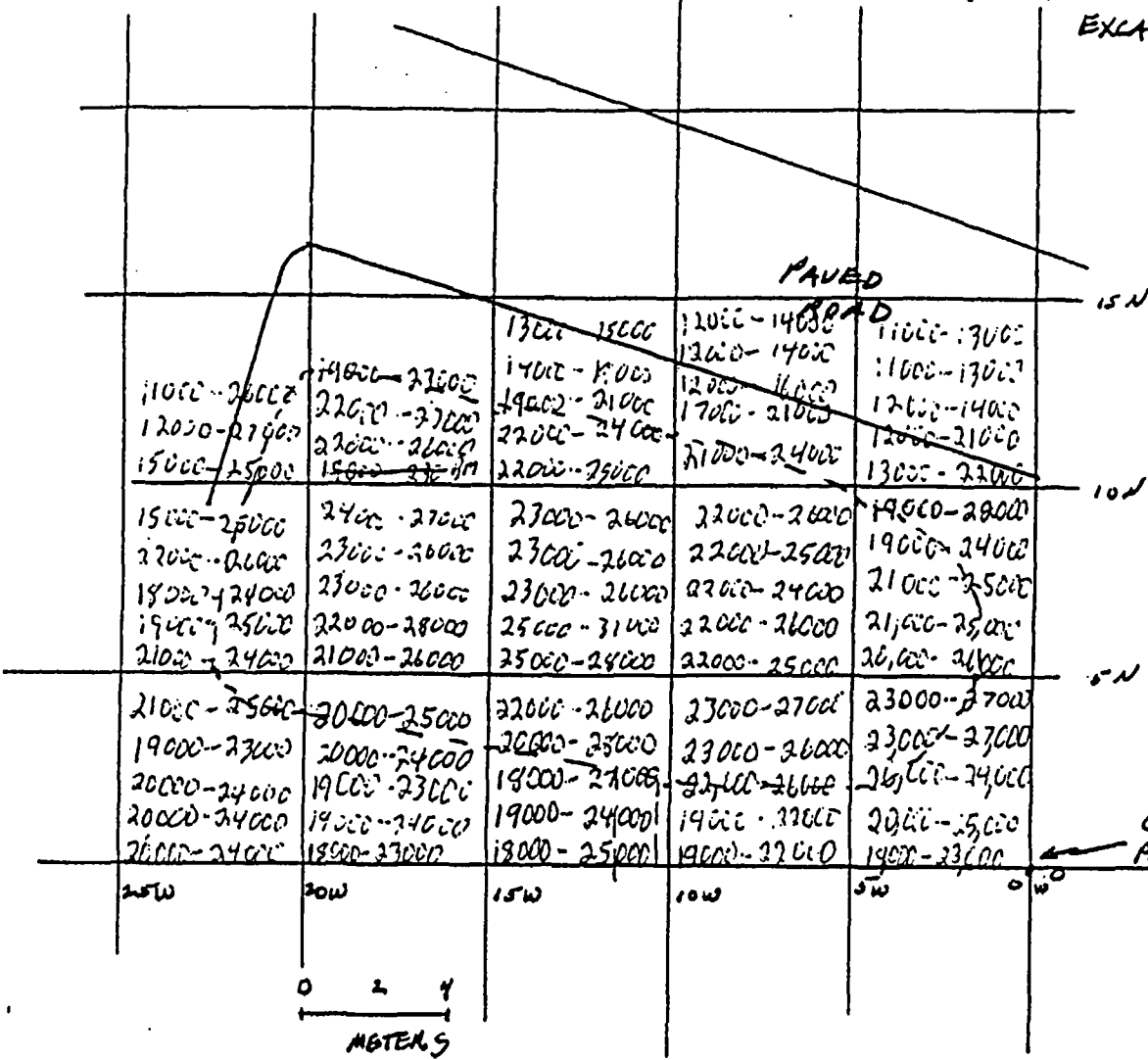
SUBJECT Surface Gamma Scan CALCULATION NO. _____ FILE NO. _____

Grid # 22

* Readings taken in 1 meter lanes



UNPAVED WASTE - JK
EXCAVATION



CORNER -
POND SURVEY

APPENDIX C
FIELD SURVEY INSTRUMENT SETS
CALIBRATION AND QUALITY CONTROL DATA

Final Status Report Instrument Sets

| Set # | Meter # | Probe # | β Efficiency Total Efficiency | β Efficiency 4 Pi Geomet | Cal Due Date | Pages |
|-------|-----------------|---------------|--|-----------------------------------|-----------------|-------|
| | L2221 | L44-10 | | | | |
| 1 | 184010 | 150873 | n/a | n/a | 03/24/04 | 11 |
| 2 | 157031 | 155202 | n/a | n/a | 03/17/04 | 14 |
| 3 | 190191 | 199130 | n/a | n/a | 06/02/04 | 6 |
| 4* | NOT | USED | FOR FINAL | SURVEY | | 0 |
| 5* | NOT | USED | FOR FINAL | SURVEY | | 0 |
| 21 | 172017 | 186956 | n/a | n/a | 11/07/03 | 8 |
| | L2221 | L43-37 | | | | |
| 6 | 103942 | 149715 | 0.114 | 0.247 | 03/27/04 | 8 |
| 7 | 172051 | 161367 | 0.109 | n/a | 04/02/04 | 8 |
| 8 | 157024 | 066273 | n/a | 0.24 | 06/27/04 | 8 |
| | L2221 | L43-68 | | | | |
| 9 | 172051 | 116718 | 0.107 | 0.256 | 04/02/04 | 8 |
| 10 | 103942 | 160790 | 0.109 | 0.259 | 03/27/04 | 8 |
| 11 | 187752 | 160700 | 0.26 | n/a | 01/16/04 | 6 |
| 12 | 157204 | 160687 | 0.109 | 0.273 | 06/27/04 | 8 |
| 13 | 172035 | 116719 | 0.105 | 0.267 | 04/10/04 | 8 |
| 20 | 172051 | 160795 | 0.109 | 0.256 | 09/02/04 | 6 |
| | L2221 | 491-30 | | | | |
| 14 | 172035 | X339 | 0.065 | n/a | 10/02/03 | 4 |
| 15 | 152184 | X339 | 0.065 | n/a | 10/02/03 | 8 |
| 16 | 184010 | X339 | 0.065 | n/a | 10/02/03 | 8 |
| | L2221 | 44-02 | | | | |
| 17 | 152184 | 145722 | n/a | n/a | 03/05/04 | 8 |
| | L2221 | 44-62 | | | | |
| 18 | 152184 | 183679 | n/a | n/a | 03/05/04 | 8 |
| | Model-12 | 44-9 | | | | |
| 19 | 167173 | 151868 | n/a | n/a | 03/20/04 | 8 |

L44-10 Scintillation detector
 L43-37 Gas Proportional Detector
 L43-68 Gas Proportional Detector
 491-30 Geiger Muller Detector
 44-02 Gas Proportional Detector
 44-62 Gas Proportional Detector
 L44-9 Geiger Muller Detector
 X339 Pipe Detector Described in Section 4.3 Facility Piping
 * Deleted-Set # 4 and #5 not used for Final Survey

Instrument Set 1

UVAP

DAILY FIELD SOURCE CHECK LOG - FIELD INSTRUMENT

Source Type: Cs 137 Source Activity: 8.95 μCi

Instrument: L2221 S/N: 184010 Voltage: 37774 8:34 67927 12704 3/11/51

Detector: L44-10 S/N: 150873 Threshold: 100 Cal. Due: 3/24/04

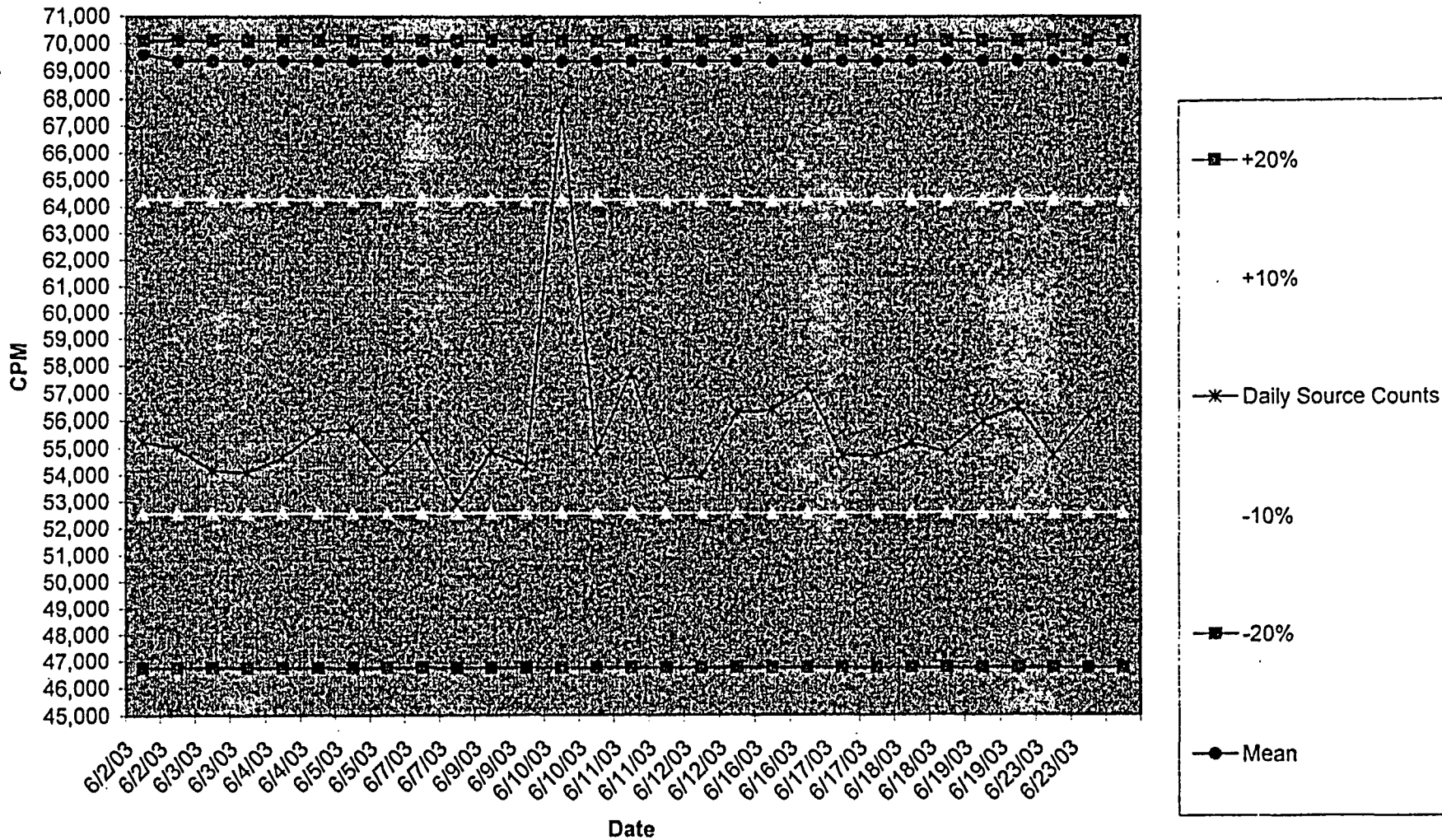
| Date | Time | Source Check Gross CPM (A) | Bkg. cpm (B) | Net | Eff. | HV | Batt. | Spkr. | Phys. | By |
|---------|-------|-------------------------------|-----------------|--------|------|------|-------|-------|-------|----|
| | | | | Counts | | | | | | |
| 6/2/03 | 8:34 | 67,927 | 12,704 | 55223 | n/a | 1149 | 5.7 | ok | ok | BL |
| 6/2/03 | 17:10 | 67,495 | 12,473 | 55022 | n/a | 1149 | 5.7 | ok | ok | JS |
| 6/3/03 | 7:20 | 66,703 | 12,524 | 54179 | n/a | 1149 | 5.7 | ok | ok | BL |
| 6/3/03 | 17:05 | 67,015 | 12,902 | 54113 | n/a | 1150 | 5.7 | ok | ok | JS |
| 6/4/03 | 8:00 | 67,546 | 12,886 | 54660 | n/a | 1150 | 5.5 | ok | ok | JS |
| 6/4/03 | 17:15 | 68,519 | 12,916 | 55603 | n/a | 1150 | 5.6 | ok | ok | BL |
| 6/5/03 | 7:40 | 68,677 | 12,958 | 55719 | n/a | 1150 | 5.6 | ok | ok | BL |
| 6/5/03 | 17:10 | 67,354 | 13,149 | 54205 | n/a | 1151 | 5.6 | ok | ok | JS |
| 6/7/03 | 13:00 | 68,435 | 12,981 | 55454 | n/a | 1150 | 5.6 | ok | ok | BM |
| 6/7/03 | 17:00 | 65,932 | 13,021 | 52911 | n/a | 1150 | 5.6 | ok | ok | BM |
| 6/9/03 | 7:27 | 67,542 | 12,663 | 54879 | n/a | 1150 | 5.6 | ok | ok | BL |
| 6/9/03 | 17:00 | 67,120 | 12,781 | 54339 | n/a | 1149 | 5.6 | ok | ok | JS |
| 6/10/03 | 7:30 | 70,328 | 12,690 | 67638 | n/a | 1150 | 5.5 | ok | ok | BL |
| 6/10/03 | 17:10 | 67,327 | 12,456 | 54871 | n/a | 1149 | 5.6 | ok | ok | JS |
| 6/11/03 | 7:17 | 70,457 | 12,714 | 57743 | n/a | 1150 | 5.6 | ok | ok | BL |
| 6/11/03 | 17:10 | 66,750 | 12,886 | 53864 | n/a | 1151 | 5.5 | ok | ok | JS |
| 6/12/03 | 7:22 | 66,355 | 12,384 | 53971 | n/a | 1150 | 5.6 | ok | ok | BL |
| 6/12/03 | 16:50 | 67,524 | 11,252 | 56272 | n/a | 1150 | 5.6 | ok | ok | JS |
| 6/13/03 | 8:20 | 68,145 | 11,744 | 56401 | n/a | 1149 | 5.6 | ok | ok | JS |
| 6/16/03 | 17:10 | 68,741 | 11,491 | 57250 | n/a | 1149 | 5.6 | ok | ok | JS |
| 6/17/03 | 8:00 | 67,020 | 12,288 | 54732 | n/a | 1150 | 5.6 | ok | ok | JS |
| 6/17/03 | 17:00 | 67,061 | 11,861 | 54854 | n/a | 1150 | 5.6 | ok | ok | JS |
| 6/18/03 | 7:30 | 66,624 | 11,740 | 55200 | n/a | 1150 | 5.4 | ok | ok | JS |
| 6/18/03 | 17:00 | 68,113 | 12,129 | 55984 | n/a | 1151 | 5.5 | ok | ok | BL |
| 6/19/03 | 8:00 | 68,575 | 12,088 | 56487 | n/a | 1150 | 5.5 | ok | ok | JS |
| 6/19/03 | 17:10 | 66,478 | 11,753 | 54725 | n/a | 1150 | 5.5 | ok | ok | JS |
| 6/23/03 | 7:30 | 68,186 | 11,967 | 56219 | n/a | 1150 | 5.5 | ok | ok | BM |
| 6/23/03 | 17:20 | 68,929 | 13,007 | 55922 | n/a | 1150 | 5.5 | ok | ok | JS |

Remarks _____

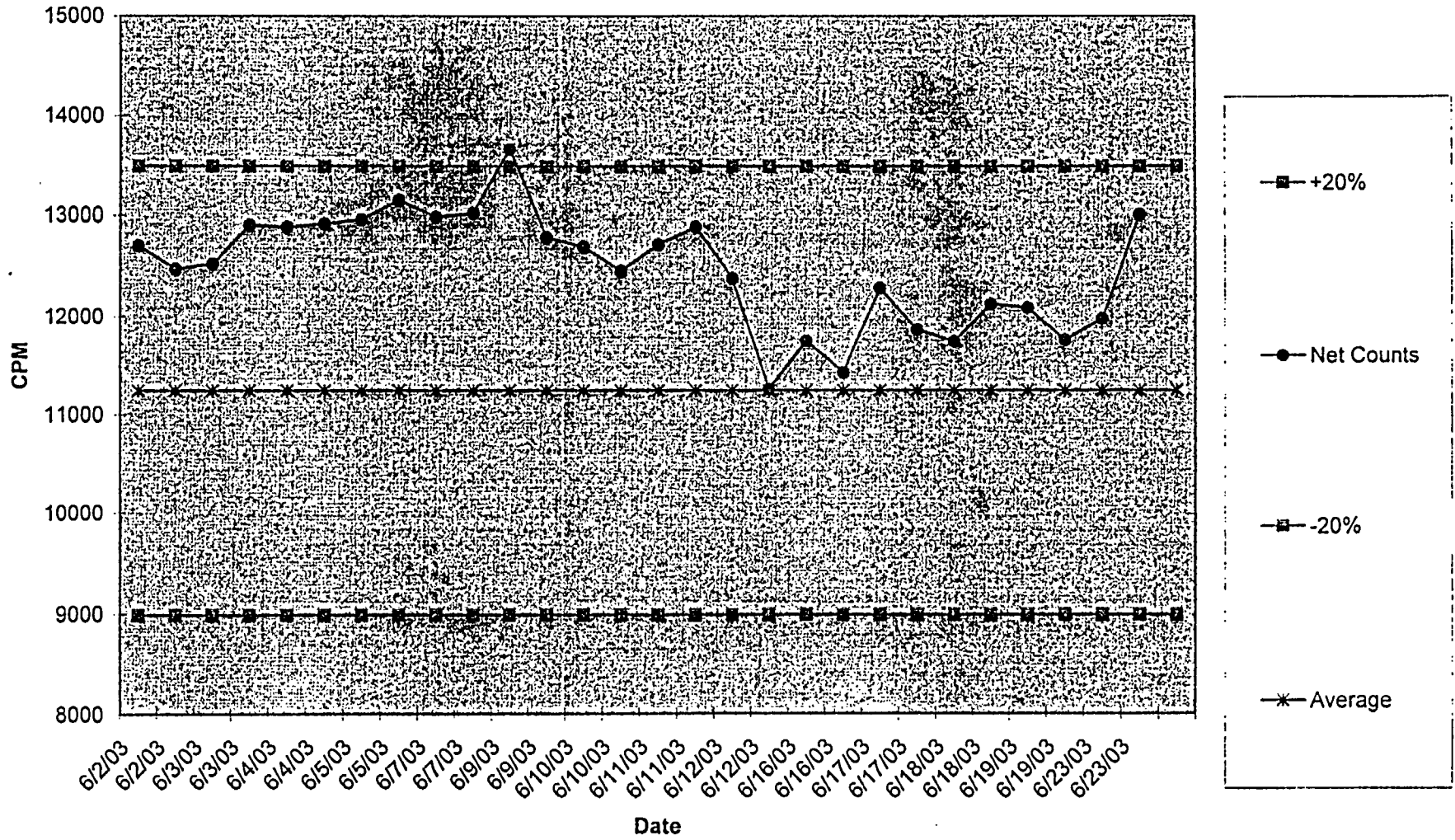
+20% 70,100
-20% 46,734

Daily Source Range

Instrument:L-2221 # 184010 Probe: L-44-10# 150873



Daily Background Range
Instrument:L-2221 #184010 Probe: L-44-10 # 150873



UVAP

DAILY FIELD SOURCE CHECK LOG - FIELD INSTRUMENT

Source Type: Cs 137 Source Activity: 8.95 μCi

Instrument: L2221 S/N: 184010 Voltage: 37774 8:34 67927 12704 3/11/51

Detector: L44-10 S/N: 150873 Threshold: 100 Cal. Due: 3/24/04

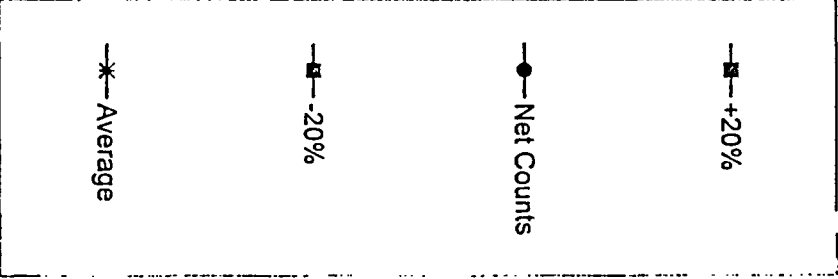
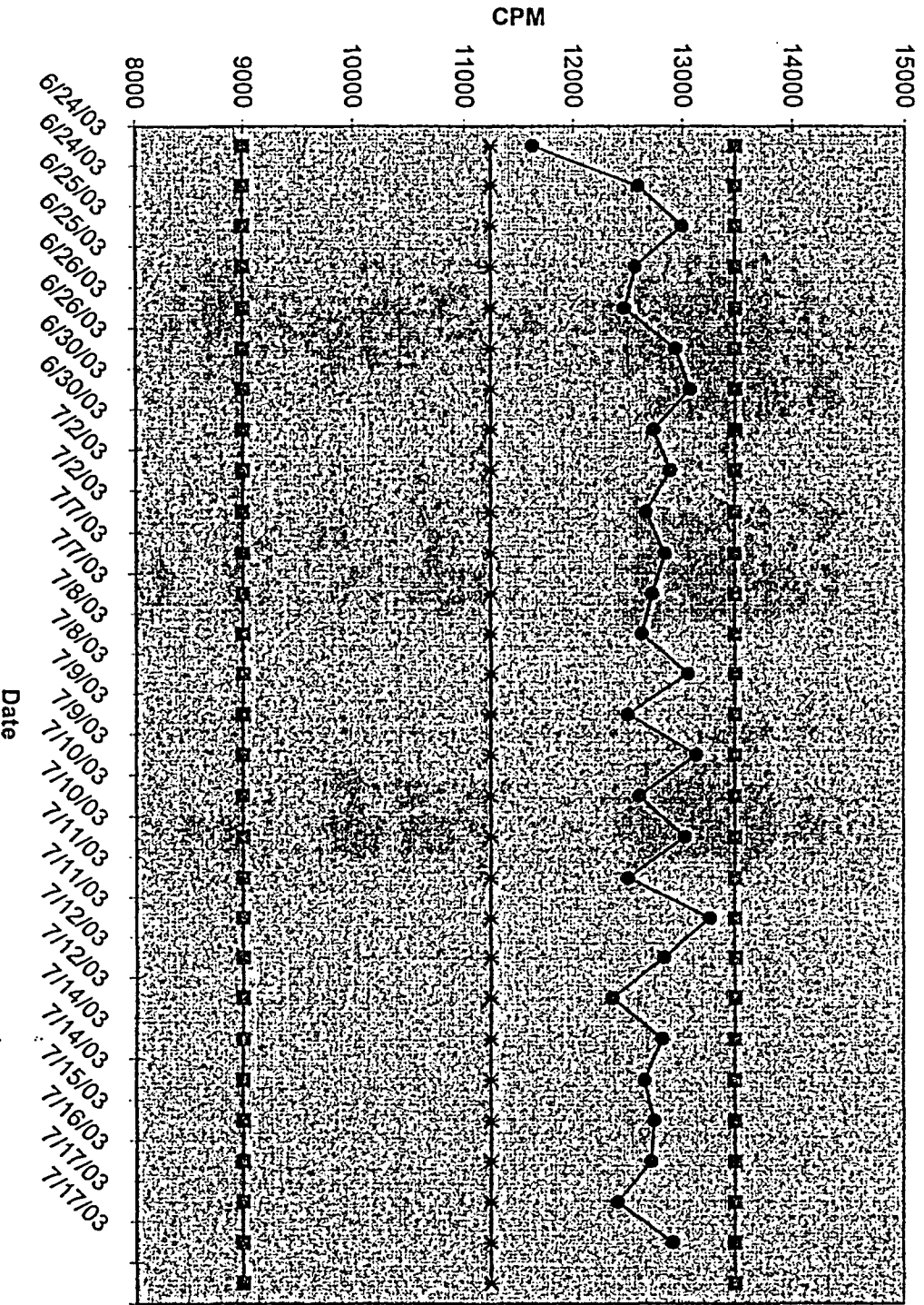
| Date | Time | Source Check Gross CPM (A) | Bkg. cpm (B) | Net | Eff. | HV | Batt. | Spkr. | Phys. | By |
|---------|-------|-------------------------------|-----------------|--------|------|------|-------|-------|-------|----|
| | | | | Counts | | | | | | |
| 6/24/03 | 7:50 | 67,369 | 11,615 | 55754 | n/a | 1150 | 5.5 | ok | ok | JS |
| 6/24/03 | 17:00 | 66,429 | 12,597 | 53832 | n/a | 1149 | 5.4 | ok | ok | BL |
| 6/25/03 | 7:40 | 66,705 | 12,998 | 53707 | n/a | 1150 | 5.5 | ok | ok | BL |
| 6/25/03 | 17:20 | 66,693 | 12,571 | 54122 | n/a | 1150 | 5.5 | ok | ok | BL |
| 6/26/03 | 9:15 | 70,974 | 12,417 | 58557 | n/a | 1150 | 5.5 | ok | ok | BL |
| 6/26/03 | 17:20 | 66,521 | 12,939 | 53582 | n/a | 1150 | 5.5 | ok | ok | BL |
| 6/30/03 | 8:05 | 65,810 | 13,073 | 52737 | n/a | 1150 | 5.5 | ok | ok | BL |
| 6/30/03 | 17:15 | 67,722 | 12,742 | 54980 | n/a | 1150 | 5.5 | ok | ok | BL |
| 7/2/03 | 7:30 | 66,204 | 12,889 | 53415 | n/a | 1150 | 5.5 | ok | ok | BL |
| 7/2/03 | 17:15 | 67,058 | 12,675 | 54383 | n/a | 1150 | 5.5 | ok | ok | BL |
| 7/7/03 | 8:00 | 67,017 | 12,845 | 54172 | n/a | 1150 | 5.5 | ok | ok | BL |
| 7/7/03 | 17:00 | 66,598 | 12,729 | 53869 | n/a | 1150 | 5.5 | ok | ok | BL |
| 7/8/03 | 7:45 | 65,729 | 12,638 | 53091 | n/a | 1150 | 5.5 | ok | ok | BL |
| 7/8/03 | 17:23 | 66,980 | 13,052 | 53928 | n/a | 1150 | 5.5 | ok | ok | BL |
| 7/9/03 | 7:45 | 65,921 | 12,501 | 53420 | n/a | 1150 | 5.5 | ok | ok | BL |
| 7/9/03 | 16:45 | 67,283 | 13,131 | 54152 | n/a | 1150 | 5.5 | ok | ok | BL |
| 7/10/03 | 15:45 | 66,408 | 12,611 | 53797 | n/a | 1150 | 5.4 | ok | ok | BL |
| 7/10/03 | 16:45 | 65,611 | 13,022 | 52589 | n/a | 1150 | 5.4 | ok | ok | BL |
| 7/11/03 | 7:27 | 66,600 | 12,506 | 54094 | n/a | 1151 | 5.5 | ok | ok | BL |
| 7/11/03 | 16:50 | 65,667 | 13,256 | 52411 | n/a | 1151 | 5.4 | ok | ok | BL |
| 7/12/03 | 7:05 | 70,208 | 12,835 | 57373 | n/a | 1151 | 5.5 | ok | ok | BL |
| 7/12/03 | 15:51 | 66,442 | 12,359 | 54083 | n/a | 1151 | 5.4 | ok | ok | BL |
| 7/14/03 | 7:49 | 67,438 | 12,818 | 54620 | n/a | 1150 | 5.5 | ok | ok | BL |
| 7/14/03 | 16:40 | 67,217 | 12,657 | 54560 | n/a | 1150 | 5.5 | ok | ok | BL |
| 7/15/03 | 7:50 | 66,669 | 12,741 | 53928 | n/a | 1150 | 5.4 | ok | ok | JS |
| 7/16/03 | 7:40 | 67,264 | 12,718 | 54546 | n/a | 1149 | 5.4 | ok | ok | JS |
| 7/17/03 | 8:30 | 66,299 | 12,406 | 53893 | n/a | 1150 | 5.4 | ok | ok | BL |
| 7/17/03 | 16:00 | 67,396 | 12,914 | 54482 | n/a | 1150 | 5.4 | ok | ok | BL |

Remarks _____

+20% 70,100
-20% 46,734

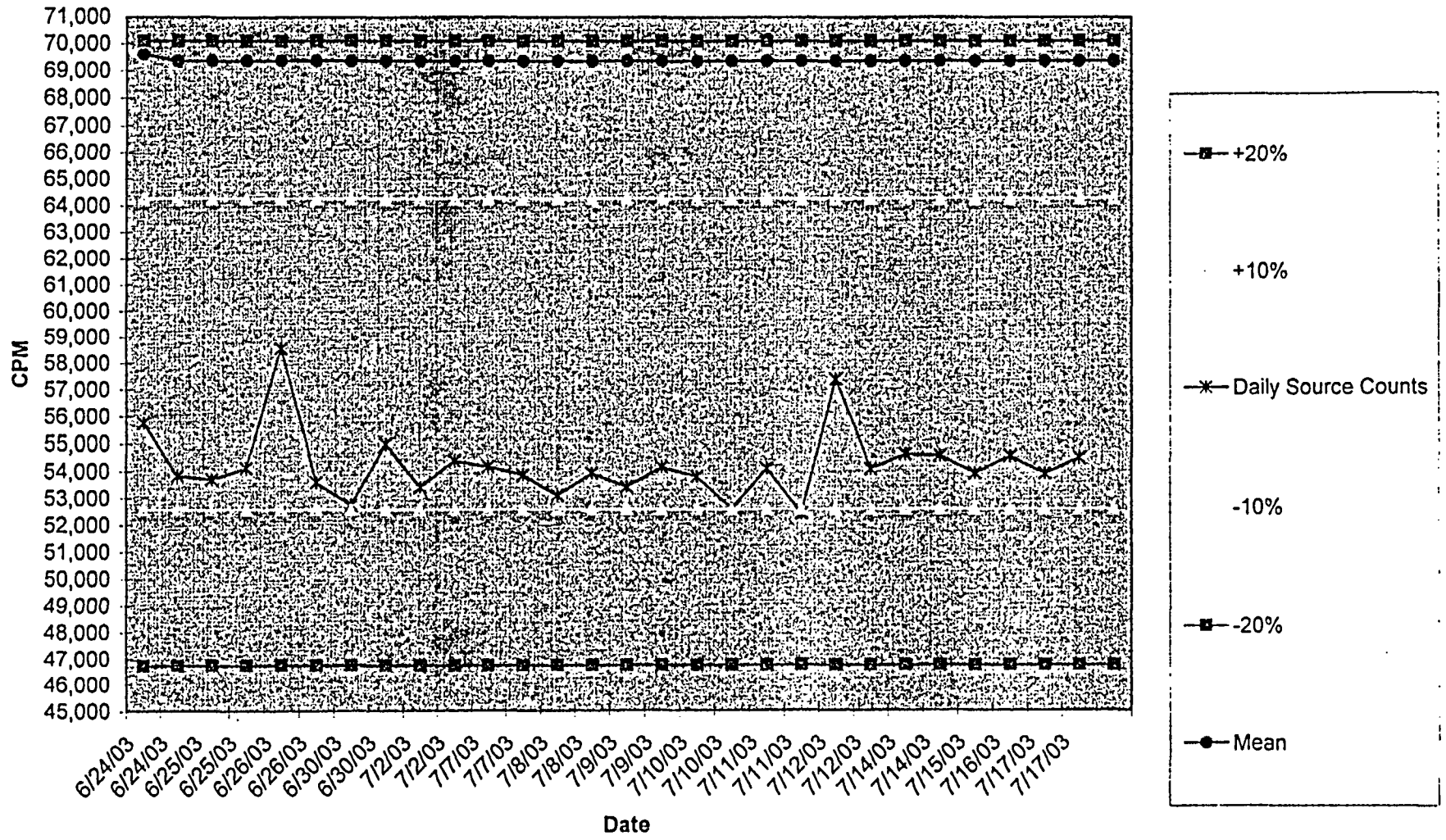
y BKG

Daily Background Range
Instrument: L-2221 #184010 Probe: L-44-10 # 150873



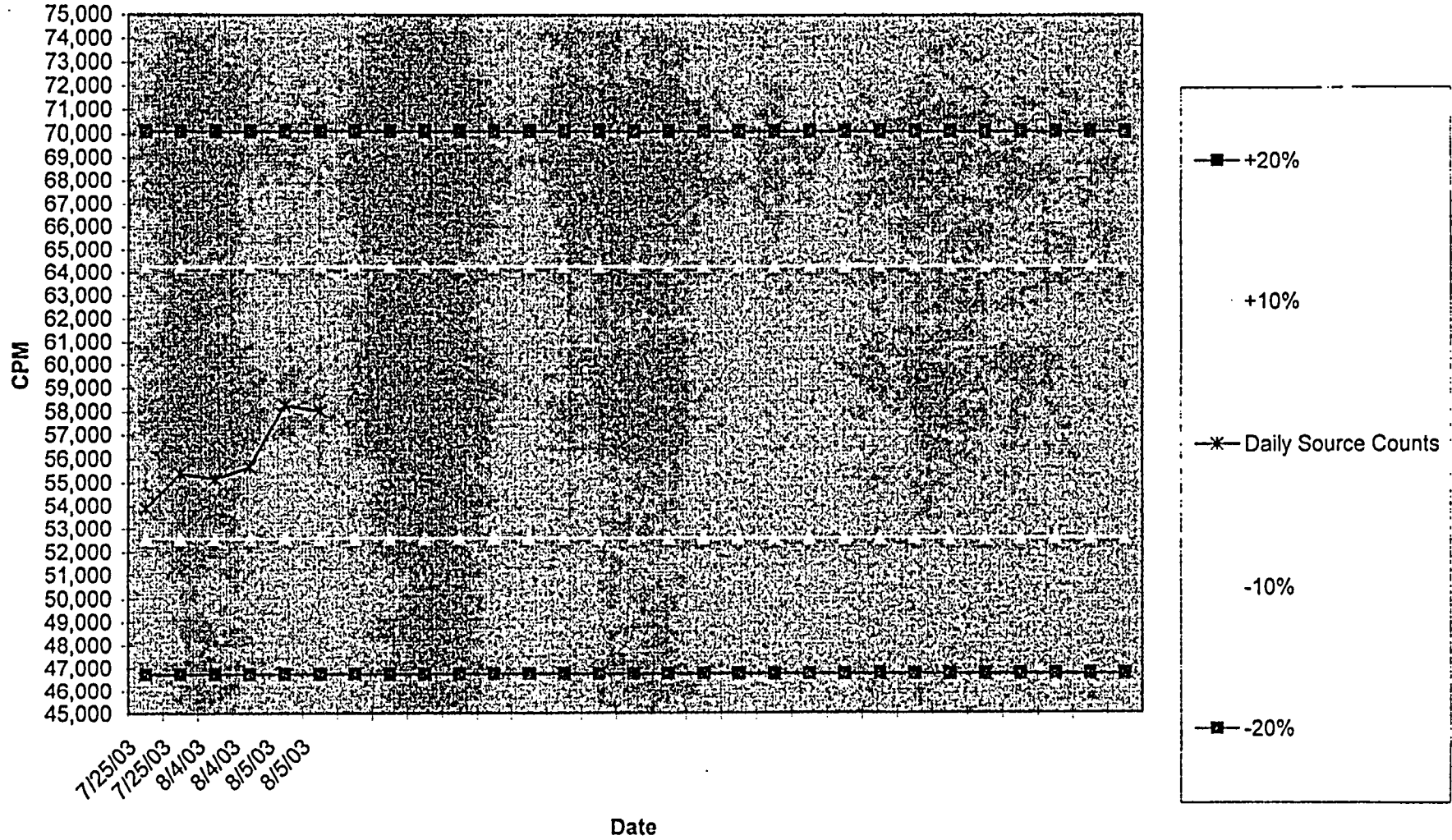
Daily Source Range

Instrument:L-2221 # 184010 Probe: L-44-10# 150873



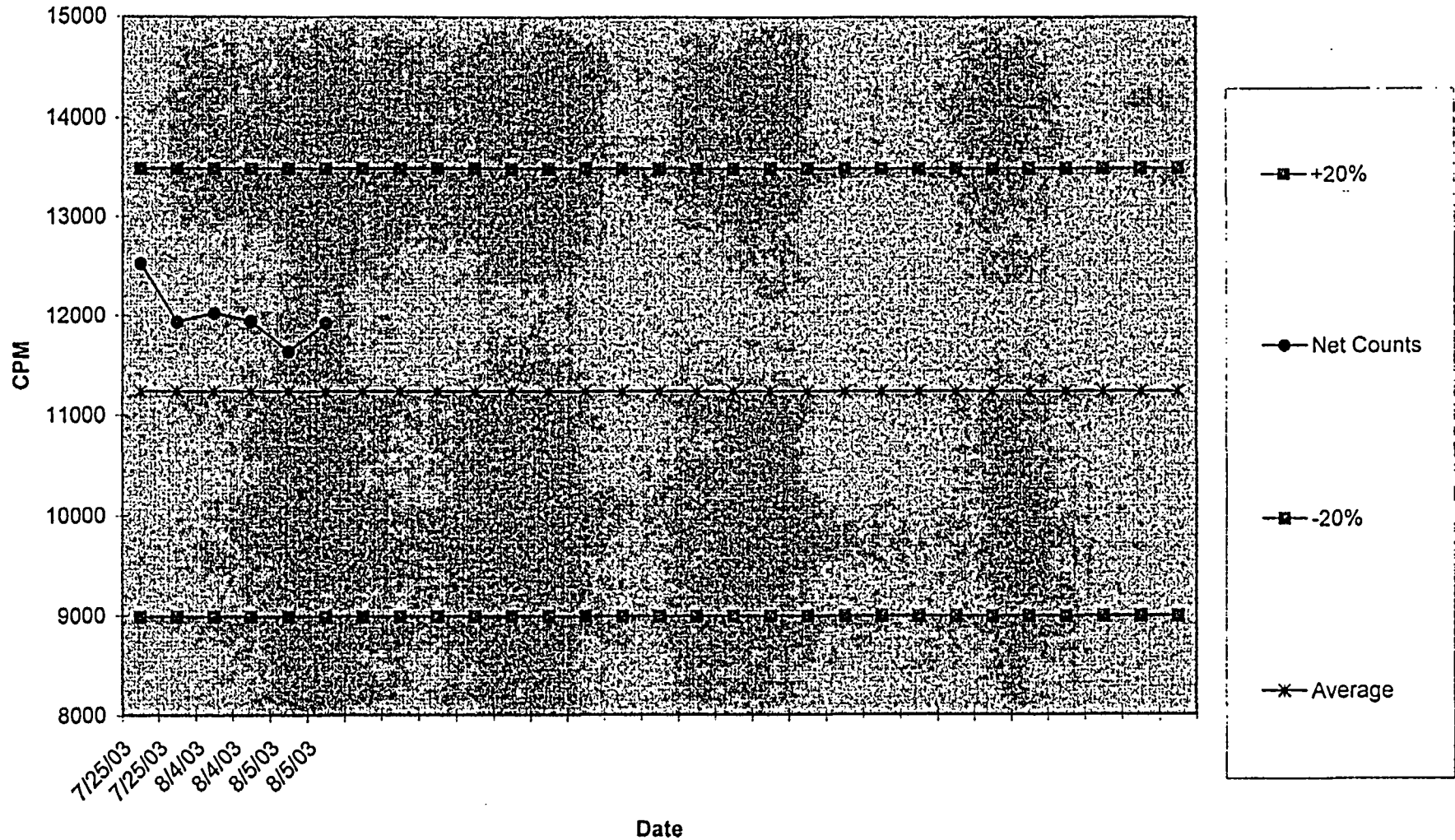
Daily Source Range

Instrument:L-2221 # 184010 Probe: L-44-10# 150873



Daily Background Range

Instrument:L-2221 #184010 Probe: L-44-10 # 150873





Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

Page 1 of 1

3/24/2003

Calibration Certificate for 2221, Serial # 184010, Bar Code # , Property # SEC-5167

Date: 03/24/03

Date Last Cal. Expires: 11/07/03

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2

SERIAL #: 132896

CAL DUE: 11/26/03

MODEL:

SERIAL #:

CAL DUE:

AS FOUND DATA

Geotropism: SAT

AF Instrument Condition: SAT

AL Instrument Condition: SAT

HIGH VOLTAGE

AS FOUND HV

AS LEFT HV

New Batteries?

AF Mechanical Zero: 0

(+/- 10% tolerance)

500 V: 496

506

Threshold ratio: 100=10mV

AL Mechanical Zero: 0

1000 V: 989

1000

AF THRESHOLD: 10.0 mV

AF HV Reading: 1030 V

1500 V: 1484

1496

AL THRESHOLD: 10.0 mV

AL HV Reading: 1150 V

RATE METER

| SCALE | RATE CPM | AS FOUND | % ERROR | AS LEFT | % ERROR |
|-----------------------|----------|----------|---------|---------|---------|
| x.1 or x1 | 100 | 100 | 0.00% | AF | 0.00% |
| | 250 | 250 | 0.00% | AF | 0.00% |
| | 400 | 400 | 0.00% | AF | 0.00% |
| x1 or x10 | 1000 | 1000 | 0.00% | AF | 0.00% |
| | 2500 | 2500 | 0.00% | AF | 0.00% |
| | 4000 | 4000 | 0.00% | AF | 0.00% |
| x10 or x100 (x1000) | 10K | 10 | 0.00% | AF | 0.00% |
| | 25K | 25 | 0.00% | AF | 0.00% |
| | 40K | 40 | 0.00% | AF | 0.00% |
| x100 or x1000 (x1000) | 100K | 100 | 0.00% | AF | 0.00% |
| | 250K | 250 | 0.00% | AF | 0.00% |
| | 400K | 400 | 0.00% | AF | 0.00% |
| SCALER: | | 250 | 0.00% | AF | 0.00% |

Is the As Found Data Within 20% of the Set Point?

LOG SCALE

| | | | |
|----------|-------|----------|-------|
| AF 200: | 200 | % ERROR: | 0.00% |
| AF 2000: | 2000 | % ERROR: | 0.00% |
| AF 20K: | 20 K | % ERROR: | 0.00% |
| AF 200K: | 200 K | % ERROR: | 0.00% |
| AL 200: | AF | % ERROR: | 0.00% |
| AL 2000: | AF | % ERROR: | 0.00% |
| AL 20K: | AF K | % ERROR: | 0.00% |
| AL 200K: | AF K | % ERROR: | 0.00% |

Is the As Found Data Within 20% of the Set Point?

REPRODUCIBILITY

| | | | |
|----------------------|-------|-------|-------|
| x.1 or x1 Scale: | 250 | 250 | 250 |
| x1 or x10 Scale: | 2500 | 2500 | 2500 |
| x10 or x100 Scale: | 25 K | 25 K | 25 K |
| x100 or x1000 Scale: | 250 K | 250 K | 250 K |

Audio Response: SAT

Audio Divide: SAT

Push Buttons: SAT

Lamp: SAT

Scaler/Digital: SAT

Are the Individual Counts Within 10% of the Average?

Fast / Slow Response Function Properly?

Comments

Married as a set with: Model: 44-10

Serial #: PR150873

Calibrated to a new probe.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument Is Due For Next Calibration:

03/24/04

Performed by:

Carl Hall

Reviewed by:

[Signature]

Date: 3/24/03

Printed Name: Carl Hall

Entered in Computer Maintenance By:

[Signature]

Date: 3/24/03



Safety and Ecology Corporation

2800 Solway Road
Knoxville, TN 37931

Calibration Certificate

3/24/2003

Calibration Certificate for 44-10, Serial # PR150873, Bar Code # , Property # SEC-5177

Date: 03/24/03 Date Last Cal. Expires: 10/09/02 Technician: Carl Hall
Location: 9999, Reason For Calibration: Due for Calibration

EQUIPMENT USED DURING CALIBRATION

MODEL: 2221 SERIAL #: 184010 CAL DUE: 03/18/04
MODEL: SERIAL #: CAL DUE:

NIST TRACEABLE SOURCES USED

| SOURCE | ISOTOPE | ACTIVITY | ASSAY DATE |
|--------------|---------|----------|------------|
| 99CS250-0288 | Cs-137 | 8.8 uCi | 3/18/1999 |

AS FOUND DATA

AF Instrument Condition: SAT AL Instrument Condition: SAT

Efficiency from Last Cal.: 0.66 % HV From Last Calibration: 1150 V Calibration Threshold: 10 mV

| | HV | Center Count | Background Count | Probe Efficiency |
|-----------|--------|--------------|------------------|------------------|
| AS FOUND: | 1150 V | 133798 | 4518 | Cs-137 0.66% |
| AS LEFT: | AF V | | | Cs-137 |

Is the As Found Efficiency Within 20% of the efficiency from the last cal.?

Reproducibility: Isotope: Cs-137 134289 133317 133569 Average: 133725

Are the individual counts within 10% of the average?

If As Found Efficiency (even after repair) is within 10% of the last calibration and uniformity is > 10%, the technician may N/A the Plateau Data and proceed to Comments. Geometry: Nat. probes are 4" V22 from source. All other probes are in contact with surface unless otherwise specified.

LATEAU AND SET POINT DATA (CPM)

| High Voltage | Source Response | Background | HV | CENTER | Background | Efficiency |
|--------------|-----------------|------------|----|--------|------------|------------|
| N/A | | | V | | | Cs-137 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Comments: Married as a set with: Model: 2221 Serial #: 184010

Does Instrument Meet Final Acceptance Criteria? Calibration Sticker Attached?

Date Instrument is Due For Next Calibration: 03/24/04

Performed by: Carl Hall Reviewed by: [Signature] Date: 3/24/03

Printed Name: Carl Hall

Entered in Computer Inventory By: [Signature] Date: 3/24/03

Instrument Set 2

UVAP DAILY FIELD SOURCE CHECK LOG - FIELD INSTRUMENT

Source Type: Cs 137/137/19CS250 Source Activity: 8.35 uCi

Instrument: L2221 S/N: .157031 Voltage: 850 Cal. Due: 3/17/04

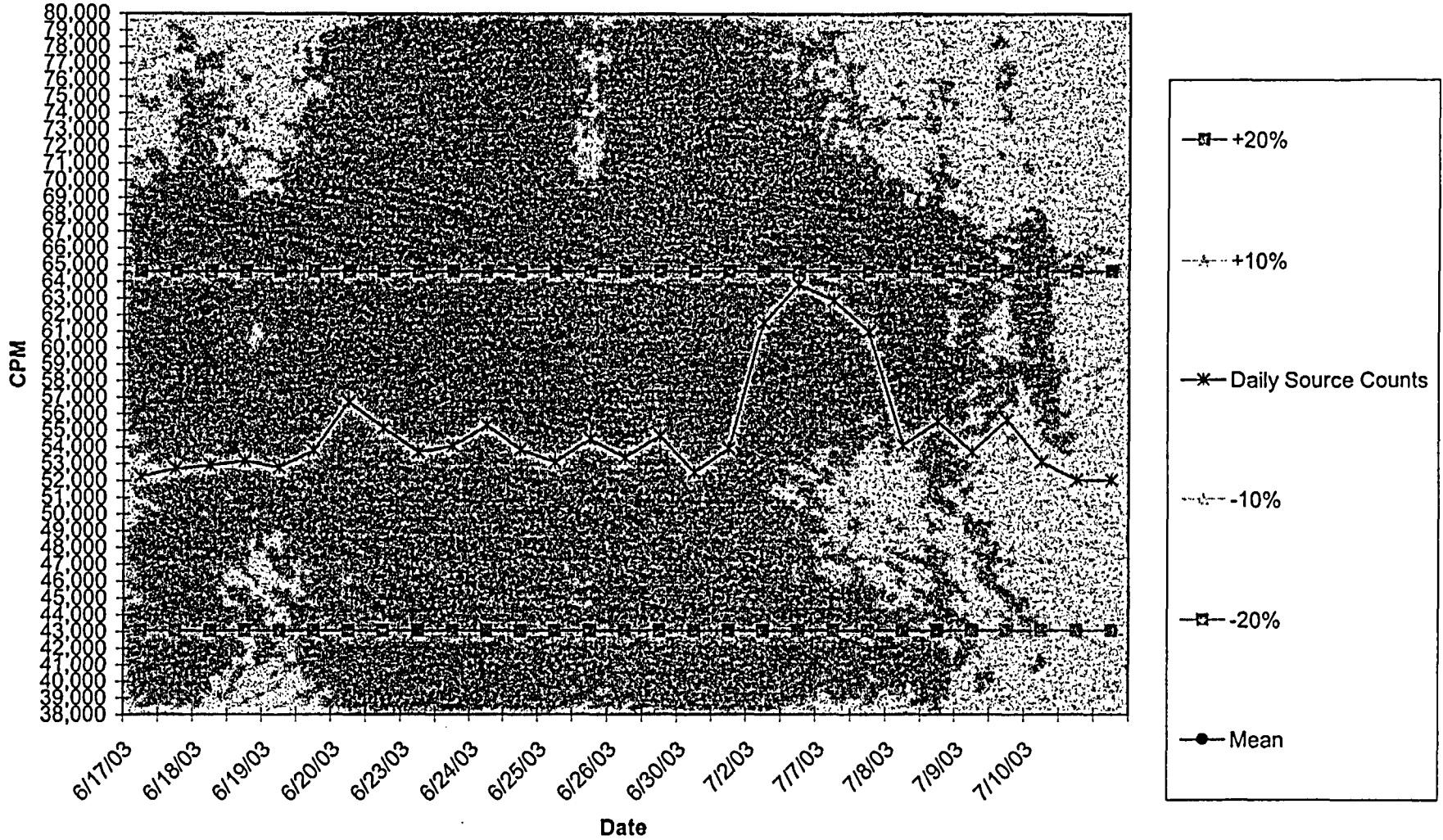
Detector: L44-10 S/N: 155202 Threshold: 100 Cal. Due: 3/17/04

| Date | Time | Source Check Gross CPM (A) | Bkg. cpm (B) | Net | Eff. 2Pi | HV | Batt. | Spkr. | Phys. | By |
|---------|-------|-------------------------------|-----------------|--------|----------|-----|-------|-------|-------|----|
| | | | | Counts | | | | | | |
| 6/17/03 | 10:30 | 63,581 | 11,333 | 52248 | n/a | 850 | 5.7 | ok | ok | BL |
| 6/17/03 | 17:15 | 64,121 | 11,410 | 52711 | n/a | 850 | 5.7 | ok | ok | BL |
| 6/18/03 | 10:00 | 65,465 | 12,537 | 52928 | n/a | 850 | 5.7 | ok | ok | BL |
| 6/18/03 | 16:05 | 65,404 | 12,243 | 53161 | n/a | 850 | 5.6 | ok | ok | BL |
| 6/19/03 | 7:30 | 65,202 | 12,408 | 52794 | n/a | 850 | 5.6 | ok | ok | BL |
| 6/19/03 | 17:25 | 65,400 | 11,605 | 53795 | n/a | 850 | 5.7 | ok | ok | BL |
| 6/20/03 | 15:00 | 67,985 | 11,273 | 56712 | n/a | 850 | 5.7 | ok | ok | AT |
| 6/20/03 | 17:00 | 66,722 | 11,585 | 55137 | n/a | 850 | 5.7 | ok | ok | AT |
| 6/23/03 | 7:35 | 65,403 | 11,719 | 53684 | n/a | 850 | 5.7 | ok | ok | BM |
| 6/23/03 | 17:05 | 65,793 | 11,727 | 54066 | n/a | 850 | 5.5 | ok | ok | JS |
| 6/24/03 | 7:40 | 66,691 | 11,394 | 55297 | n/a | 850 | 5.6 | ok | ok | JS |
| 6/24/03 | 17:15 | 65,563 | 11,719 | 53844 | n/a | 850 | 5.5 | ok | ok | JS |
| 6/25/03 | 7:20 | 64,755 | 11,654 | 53101 | n/a | 851 | 5.6 | ok | ok | BM |
| 6/25/03 | 17:00 | 66,217 | 11,742 | 54475 | n/a | 851 | 5.5 | ok | ok | JS |
| 6/26/03 | 10:25 | 64,901 | 11,540 | 53361 | n/a | 850 | 5.5 | ok | ok | JS |
| 6/26/03 | 17:00 | 66,431 | 11,759 | 54672 | n/a | 851 | 5.5 | ok | ok | JS |
| 6/30/03 | 8:00 | 64,266 | 11,772 | 52494 | n/a | 850 | 5.5 | ok | ok | JS |
| 6/30/03 | 17:00 | 66,150 | 12,252 | 53898 | n/a | 850 | 5.5 | ok | ok | JS |
| 7/2/03 | 8:30 | 72,870 | 11,358 | 61512 | n/a | 851 | 5.6 | ok | ok | AT |
| 7/2/03 | 16:00 | 76,694 | 12,861 | 63833 | n/a | 850 | 5.6 | ok | ok | AT |
| 7/7/03 | 6:50 | 73,811 | 10,961 | 62850 | n/a | 851 | 5.6 | ok | ok | AT |
| 7/7/03 | 10:00 | 72,731 | 11,751 | 60980 | n/a | 851 | 5.4 | ok | ok | AT |
| 7/8/03 | 14:00 | 66,046 | 11,964 | 54082 | n/a | 850 | 5.5 | ok | ok | JS |
| 7/8/03 | 17:00 | 67,415 | 11,871 | 55544 | n/a | 850 | 5.3 | ok | ok | JS |
| 7/9/03 | 8:05 | 66,252 | 12,561 | 53691 | n/a | 851 | 5.5 | ok | ok | JS |
| 7/9/03 | 17:15 | 66,852 | 11,237 | 55615 | n/a | 849 | 5.4 | ok | ok | JS |
| 7/10/03 | 7:30 | 64,825 | 11,713 | 53112 | n/a | 850 | 5.5 | ok | ok | JS |
| 7/10/03 | 17:10 | 65,301 | 13,285 | 52016 | n/a | 849 | 5.3 | ok | ok | JS |

Remarks _____

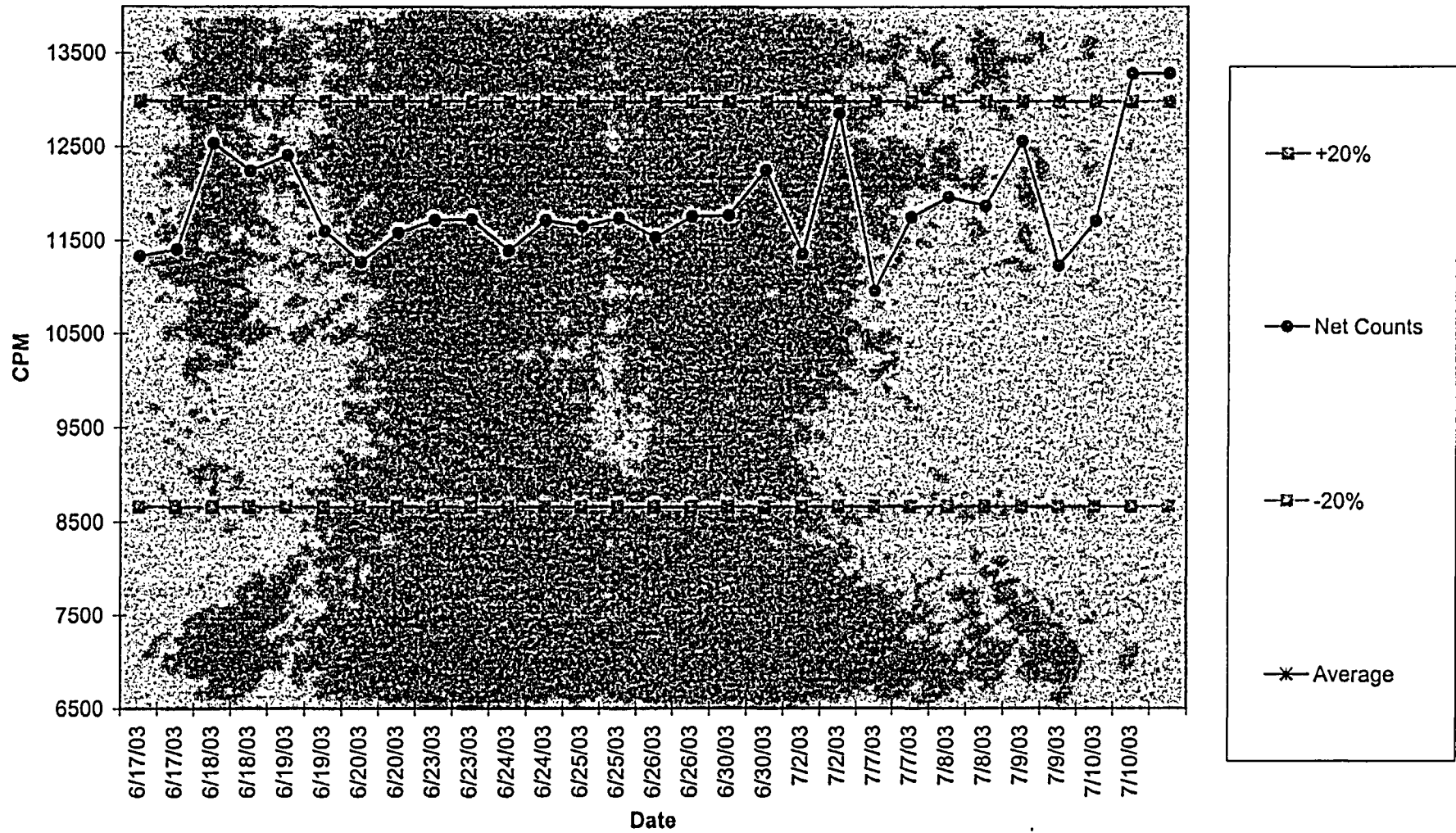
+20% 64,603 _____ 849
-20% 43,068

Daily Source Range
Instrument:L-2221 # 157031 Probe: L-44-10# 155202



Daily BKG

Daily Background Range
Instrument:L-2221 # 157031 Probe: L-44-10 # 155202



UVAP
INITIAL SETUP / ACCEPTABLE RANGE DATA SHEET

L2221 _____

SERIAL #: 157031 _____

CAL DUE: 03/17/2004 _____

PROBE: L44-10 _____

SERIAL #: 155202 _____

CAL DUE: 03/17/2004 _____

SOURCE: Cs 137 _____

SERIAL #: 7/19CS250 _____

Setup Date: 05/21/2003 _____

ACTIVITY: 8.35 uCi _____

BKG COUNT TIME: 1MINUTE _____

SOURCE COUNT TIME: 1 MINUTE _____

CALIBRATED OPERATING VOLTAGE: 850 _____

THRESHOLD VALUE: 100 _____

| COUNT # | SOURCE CPM | BKG CPM | NET SOURCE CTS | EFFICIENCY (D) |
|----------|------------|---------|----------------|----------------|
| 1 | 63,160 | 10,874 | 52,286 | N/A |
| 2 | 65,815 | 10,856 | 54,959 | N/A |
| 3 | 64,519 | 10,782 | 53,737 | N/A |
| 4 | 64,103 | 11,086 | 53,017 | N/A |
| 5 | 64,668 | 11,091 | 53,577 | N/A |
| 6 | 64,073 | 10,980 | 53,093 | N/A |
| 7 | 63,844 | 10,524 | 53,320 | N/A |
| 8 | 63,034 | 10,445 | 52,589 | N/A |
| 9 | 67,887 | 10,539 | 57,348 | N/A |
| 10 | 64,519 | 10,408 | 54,111 | N/A |
| 11 | 65,283 | 11,060 | 54,223 | N/A |
| 12 | 63,420 | 10,916 | 52,504 | N/A |
| 13 | 64,807 | 11,046 | 53,761 | N/A |
| 14 | 64,454 | 10,845 | 53,609 | N/A |
| 15 | 63,618 | 10,926 | 52,692 | N/A |
| 16 | 65,937 | 10,752 | 55,185 | N/A |
| 17 | 65,650 | 10,885 | 54,765 | N/A |
| 18 | 65,470 | 10,821 | 54,649 | N/A |
| 19 | 64,310 | 10,789 | 53,521 | N/A |
| 20 | 64,551 | 10,825 | 53,726 | N/A |
| 21 | 64,704 | 10,813 | 53,891 | N/A |
| Averages | 64,658 | 10,822 | 53,836 | N/A |

+ 10% 59,219
+ 20% 64,603

-10% 48,452
-20% 43,068

PERFORMED BY: Jason Strand _____

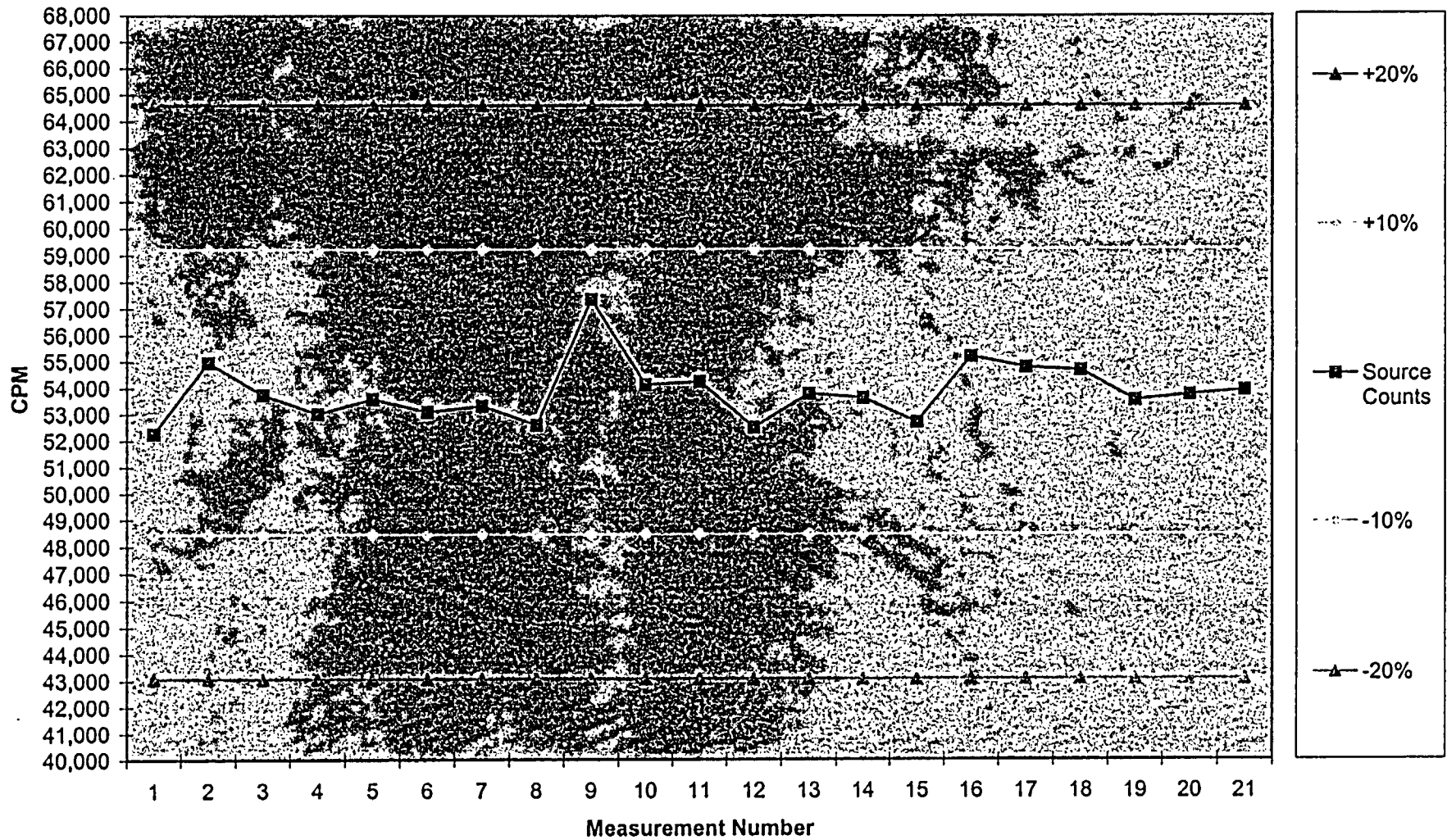
DATE: 05/21/03 _____

REVIEWED BY: Frank Myers _____

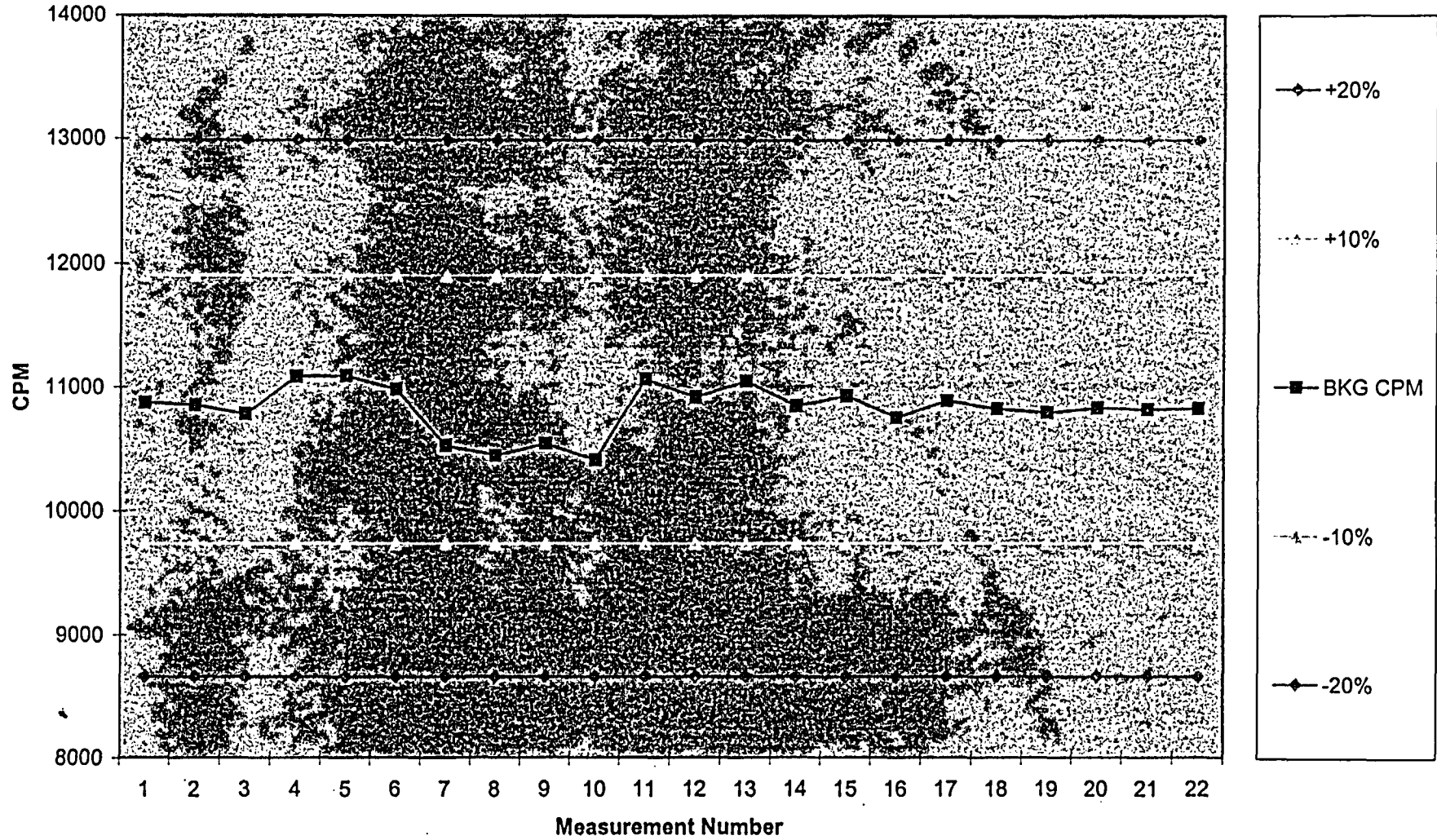
DATE: 05/21/03 _____

Initial Source

Initial Setup Source Range 5/21/03
Instrument: L-2221 # 157031 Probe: L-44-10 # 155202



Initial Setup Background Range 5/21/03
Instrument: L-2221 # 157031 Probe: L-44-10 # 155202



UVAP DAILY FIELD SOURCE CHECK LOG - FIELD INSTRUMENT

Source Type: Cs 137/137/19CS250 Source Activity: 8.35 uCi

Instrument: L2221 S/N: 157031 Voltage: 850 Cal. Due: 3/17/04

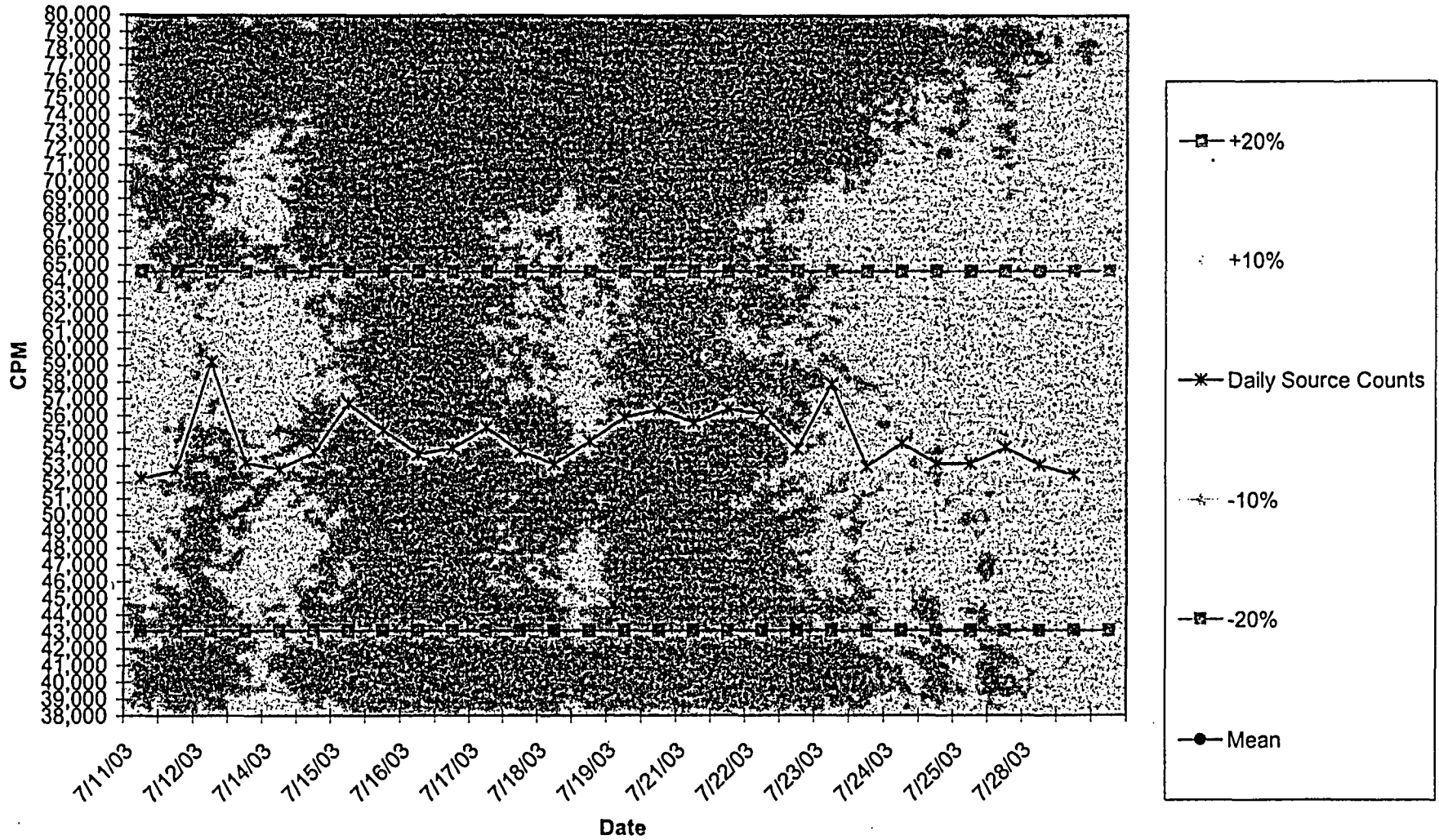
Detector: L44-10 S/N: 155202 Threshold: 100 Cal. Due: 3/17/04

| Date | Time | Source Check Gross CPM (A) | Bkg. cpm (B) | Net | Eff. 2Pi | HV | Batt. | Spkr. | Phys. | By |
|---------|-------|-------------------------------|-----------------|--------|----------|-----|-------|-------|-------|----|
| | | | | Counts | | | | | | |
| 7/11/03 | 7:45 | 64,554 | 13,604 | 52248 | n/a | 850 | 5.5 | ok | ok | BM |
| 7/11/03 | 17:00 | 66,793 | 11,535 | 52711 | n/a | 849 | 5.2 | ok | ok | JS |
| 7/12/03 | 7:45 | 65,501 | 12,580 | 52928 | n/a | 850 | 5.4 | ok | ok | JS |
| 7/12/03 | 17:15 | 66,144 | 13,631 | 53161 | n/a | 850 | 5.4 | ok | ok | JS |
| 7/14/03 | 7:40 | 66,014 | 12,534 | 52794 | n/a | 850 | 5.5 | ok | ok | JS |
| 7/14/03 | 17:00 | 65,357 | 12,600 | 53795 | n/a | 850 | 5.4 | ok | ok | JS |
| 7/15/03 | 10:30 | 65,870 | 11,394 | 56712 | n/a | 850 | 5.5 | ok | ok | JS |
| 7/15/03 | 17:00 | 66,838 | 11,596 | 55137 | n/a | 850 | 5.4 | ok | ok | JS |
| 7/16/03 | 7:50 | 65,879 | 11,752 | 53684 | n/a | 851 | 5.4 | ok | ok | JS |
| 7/16/03 | 17:05 | 67,580 | 12,969 | 54066 | n/a | 849 | 5.3 | ok | ok | JS |
| 7/17/03 | 7:30 | 66,858 | 11,642 | 55297 | n/a | 850 | 5.4 | ok | ok | JS |
| 7/17/03 | 17:30 | 67,681 | 12,246 | 53844 | n/a | 849 | 5.3 | ok | ok | JS |
| 7/18/03 | 7:30 | 67,258 | 11,889 | 53101 | n/a | 850 | 5.4 | ok | ok | JS |
| 7/18/03 | 15:05 | 68,371 | 12,671 | 54475 | n/a | 849 | 5.3 | ok | ok | JS |
| 7/19/03 | 11:30 | 67,829 | 11,932 | 55879 | n/a | 850 | 5.2 | ok | ok | AT |
| 7/19/03 | 16:20 | 68,002 | 11,636 | 56366 | n/a | 850 | 5.2 | ok | ok | AT |
| 7/21/03 | 7:50 | 68,251 | 12,685 | 55566 | n/a | 850 | 5.4 | ok | ok | JS |
| 7/21/03 | 17:05 | 67,914 | 11,544 | 56370 | n/a | 851 | 5.3 | ok | ok | JS |
| 7/22/03 | 7:50 | 684,455 | 12,352 | 56103 | n/a | 850 | 5.3 | ok | ok | JS |
| 7/22/03 | 15:45 | 66,461 | 12,483 | 53978 | n/a | 851 | 5.3 | ok | ok | JS |
| 7/23/03 | 8:00 | 70,014 | 12,171 | 57843 | n/a | 850 | 5.3 | ok | ok | JS |
| 7/23/03 | 17:15 | 65,683 | 12,765 | 52918 | n/a | 851 | 5.3 | ok | ok | JS |
| 7/24/03 | 8:00 | 66,899 | 12,559 | 54340 | n/a | 850 | 5.3 | ok | ok | JS |
| 7/24/03 | 17:10 | 65,585 | 12,488 | 53097 | n/a | 850 | 5.3 | ok | ok | JS |
| 7/25/03 | 8:00 | 65,476 | 12,378 | 53098 | n/a | 851 | 5.3 | ok | ok | JS |
| 7/25/03 | 17:10 | 67,008 | 12,938 | 54070 | n/a | 850 | 5.3 | ok | ok | JS |
| 7/28/03 | 7:40 | 64,842 | 11,847 | 52995 | n/a | 851 | 5.3 | ok | ok | JS |
| 7/28/03 | 17:15 | 65,299 | 12,889 | 52410 | n/a | 850 | 5.3 | ok | ok | BM |

Remarks _____

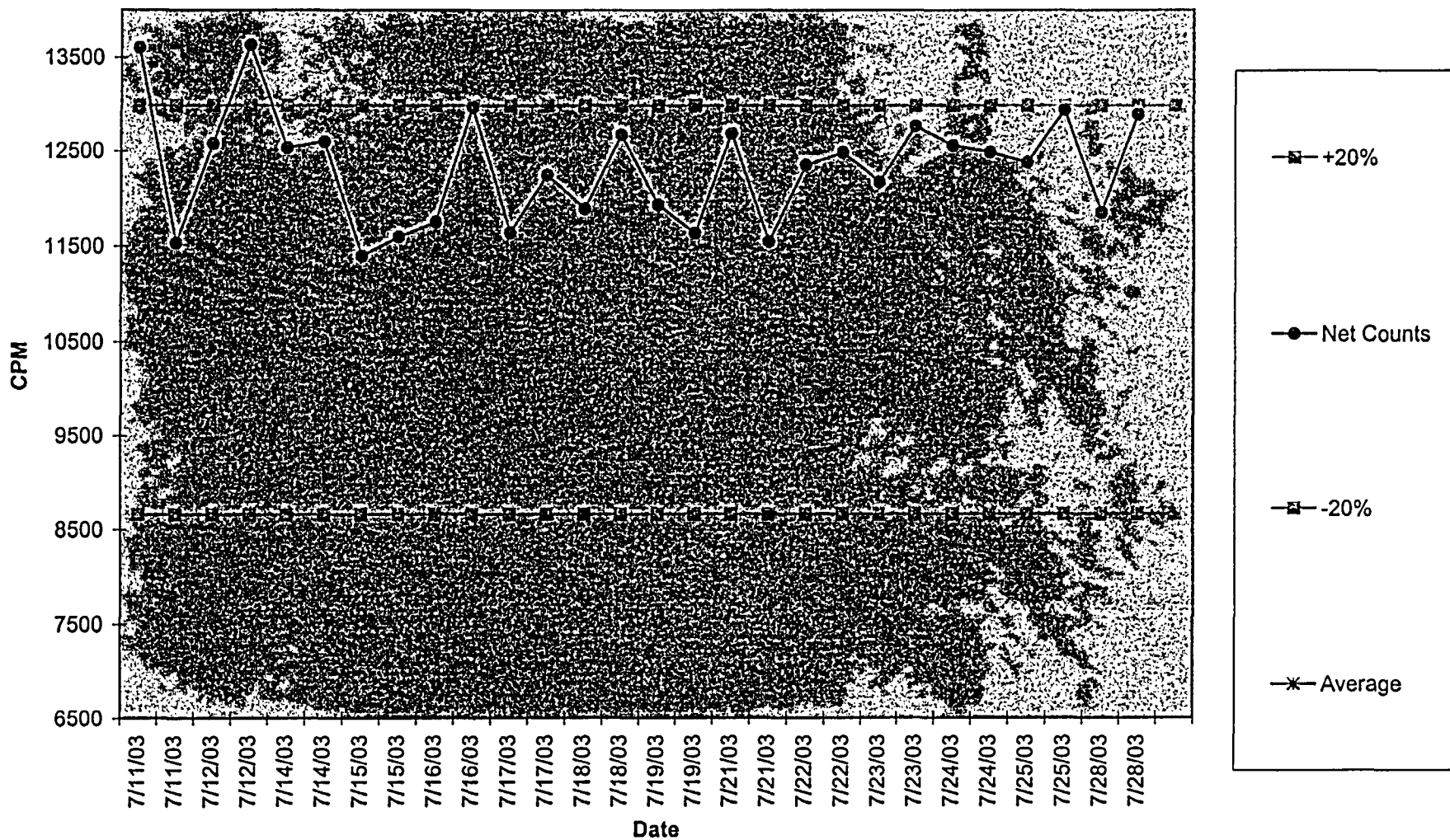
+20% 64,603 _____ 849
-20% 43,068

Daily Source Range
Instrument:L-2221 # 157031 Probe: L-44-10# 155202



Daily BKG

Daily Background Range
Instrument:L-2221 # 157031 Probe: L-44-10 # 155202



UVAP
INITIAL SETUP / ACCEPTABLE RANGE DATA SHEET

L2221 _____

SERIAL #: 157031 _____

CAL DUE: 03/17/2004 _____

PROBE: L44-10 _____

SERIAL #: 155202 _____

CAL DUE: 03/17/2004 _____

SOURCE: Cs 137 _____

SERIAL #: 7/19CS250 _____

Setup Date: 05/21/2003 _____

ACTIVITY: 8.35 uCi _____

BKG COUNT TIME: 1MINUTE _____

SOURCE COUNT TIME: 1 MINUTE _____

CALIBRATED OPERATING VOLTAGE: 850 _____

THRESHOLD VALUE: 100 _____

| COUNT # | SOURCE CPM | BKG CPM | NET SOURCE CTS | EFFICIENCY (D) |
|----------|------------|---------|----------------|----------------|
| 1 | 63,160 | 10,874 | 52,286 | N/A |
| 2 | 65,815 | 10,856 | 54,959 | N/A |
| 3 | 64,519 | 10,782 | 53,737 | N/A |
| 4 | 64,103 | 11,086 | 53,017 | N/A |
| 5 | 64,668 | 11,091 | 53,577 | N/A |
| 6 | 64,073 | 10,980 | 53,093 | N/A |
| 7 | 63,844 | 10,524 | 53,320 | N/A |
| 8 | 63,034 | 10,445 | 52,589 | N/A |
| 9 | 67,887 | 10,539 | 57,348 | N/A |
| 10 | 64,519 | 10,408 | 54,111 | N/A |
| 11 | 65,283 | 11,060 | 54,223 | N/A |
| 12 | 63,420 | 10,916 | 52,504 | N/A |
| 13 | 64,807 | 11,046 | 53,761 | N/A |
| 14 | 64,454 | 10,845 | 53,609 | N/A |
| 15 | 63,618 | 10,926 | 52,692 | N/A |
| 16 | 65,937 | 10,752 | 55,185 | N/A |
| 17 | 65,650 | 10,885 | 54,765 | N/A |
| 18 | 65,470 | 10,821 | 54,649 | N/A |
| 19 | 64,310 | 10,789 | 53,521 | N/A |
| 20 | 64,551 | 10,825 | 53,726 | N/A |
| 21 | 64,704 | 10,813 | 53,891 | N/A |
| Averages | 64,658 | 10,822 | 53,836 | N/A |

+ 10% 59,219
+ 20% 64,603

-10% 48,452
-20% 43,068

PERFORMED BY: Jason Strand _____

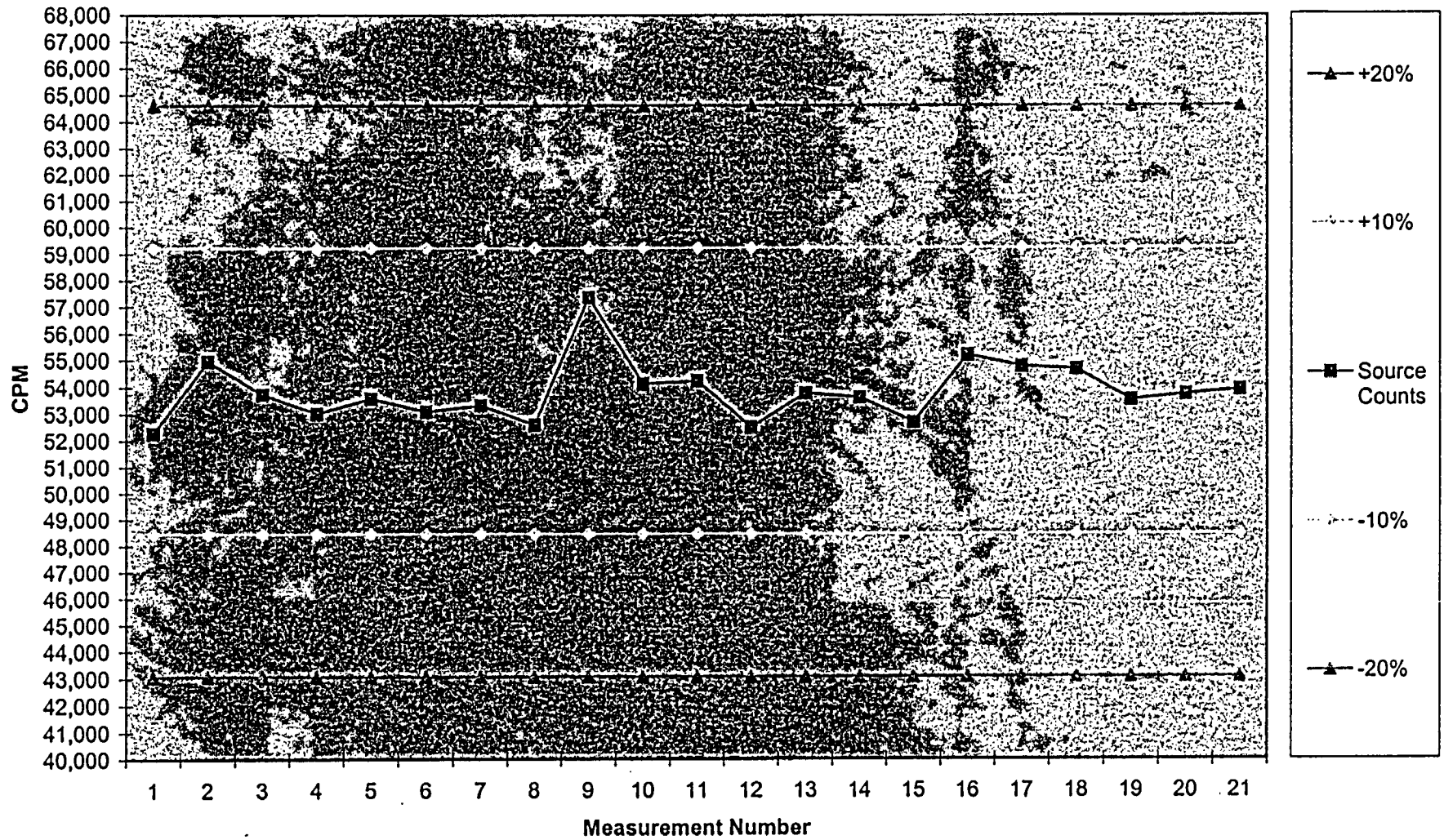
DATE: 05/21/03 _____

REVIEWED BY: Frank Myers _____

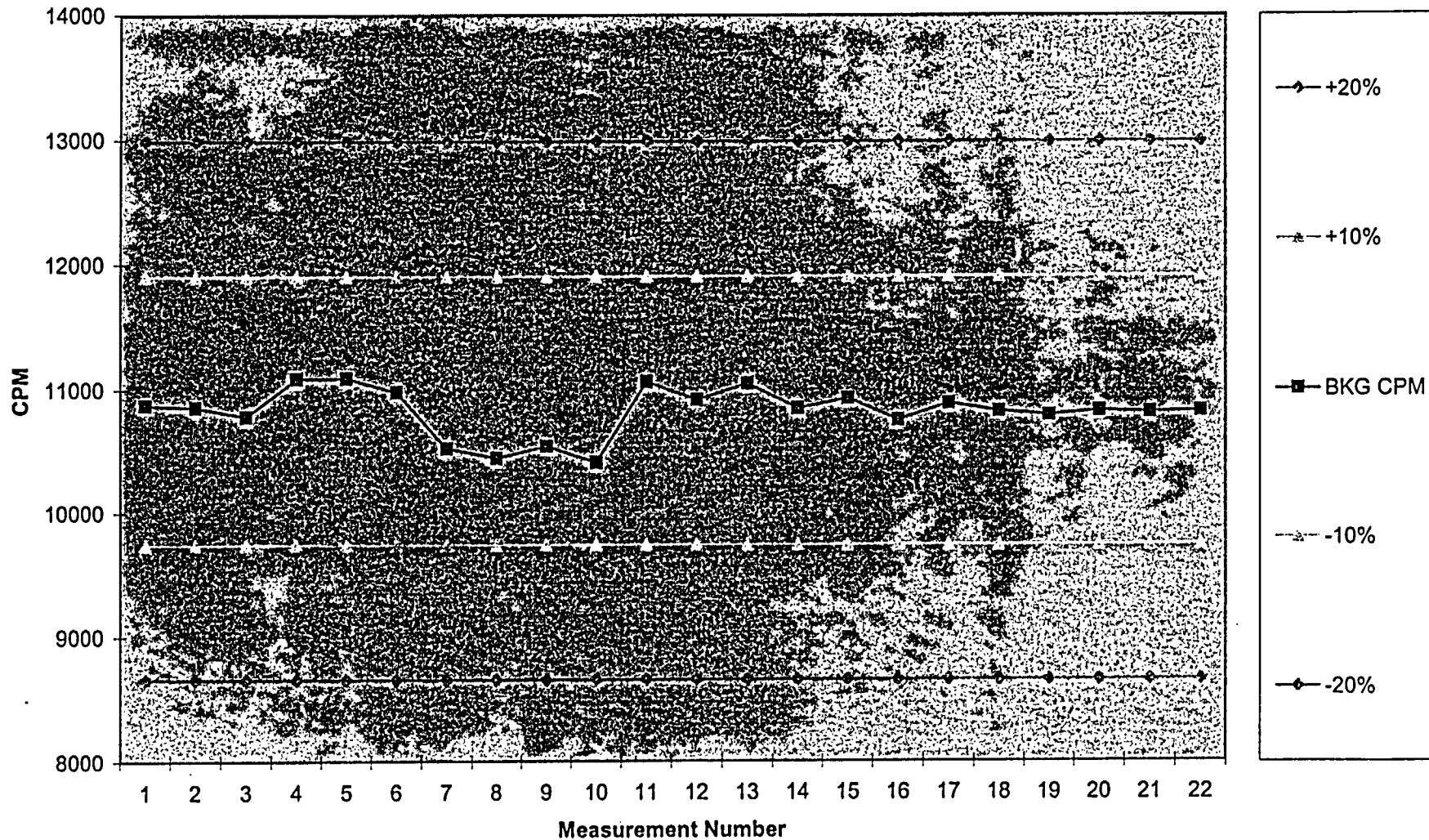
DATE: 05/21/03 _____

Initial Source

Initial Setup Source Range 5/21/03
Instrument:L-2221 # 157031 Probe: L-44-10 # 155202



Initial Setup Background Range 5/21/03
Instrument: L-2221 # 157031 Probe: L-44-10 # 155202





Safety and Ecology Corporation
 2800 Solway Road
 Knoxville, TN 37931
Calibration Certificate

Page 1 of 1
 3/17/2003

Calibration Certificate for 2221, Serial # 157031, Bar Code # ,Property # SEC-5156

Date: 03/17/03 Date Last Cal. Expires: 04/03/03 Technician: Carl Hall
 Location: 9999, Reason For Calibration: Due for Calibration

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2 SERIAL #: 132896 CAL DUE: 11/26/03
 MODEL: SERIAL #: CAL DUE:

AS FOUND DATA Geotropism: SAT AF Instrument Condition: SAT AL Instrument Condition: SAT

| | | | | |
|---------------------|--------------------|-------------------|--|-----------------------|
| HIGH VOLTAGE | AS FOUND HV | AS LEFT HV | <input checked="" type="checkbox"/> New Batteries? | AF Mechanical Zero: 0 |
| (+/- 10% tolerance) | 500 V: 500 | 504 | Threshold ratio: 100=10mV | AL Mechanical Zero: 0 |
| | 1000 V: 991 | 1000 | AF THRESHOLD: 9.6 mV | AF HV Reading: 946 V |
| | 1500 V: 1483 | 1496 | AL THRESHOLD: 10.0 mV | AL HV Reading: 850 V |

COPY

| RATE METER | | | | | |
|-------------|----------|----------|---------|---------|---------|
| SCALE | RATE CPM | AS FOUND | % ERROR | AS LEFT | % ERROR |
| x.1 or x1 | 100 | 100 | 0.00% | AF | 0.00% |
| | 250 | 250 | 0.00% | AF | 0.00% |
| | 400 | 400 | 0.00% | AF | 0.00% |
| x1 or x10 | 1000 | 1000 | 0.00% | AF | 0.00% |
| | 2500 | 2500 | 0.00% | AF | 0.00% |
| x10 or x100 | 4000 | 4000 | 0.00% | AF | 0.00% |
| | 10K | 10 | 0.00% | AF | 0.00% |
| | 25K | 25 | 0.00% | AF | 0.00% |
| (x1000) | 40K | 40 | 0.00% | AF | 0.00% |
| | 100K | 100 | 0.00% | AF | 0.00% |
| | 250K | 250 | 0.00% | AF | 0.00% |
| (x1000) | 400K | 400 | 0.00% | AF | 0.00% |
| | SCALER: | 250 | 0.00% | AF | 0.00% |

| LOG SCALE | | | |
|-----------|--------|----------|--------|
| AF 200: | 200 | % ERROR: | 0.00% |
| AF 2000: | 2000 | % ERROR: | 0.00% |
| AF 20K: | 19.5 K | % ERROR: | 2.50% |
| AF 200K: | 180 K | % ERROR: | 10.00% |
| AL 200: | AF | % ERROR: | 0.00% |
| AL 2000: | AF | % ERROR: | 0.00% |
| AL 20K: | AF K | % ERROR: | 2.50% |
| AL 200K: | AF K | % ERROR: | 10.00% |

Is the As Found Data Within 20% of the Set Point?

Is the As Found Data Within 20% of the Set Point?

| REPRODUCIBILITY | | | |
|----------------------|-------|-------|-------|
| x.1 or x1 Scale: | 250 | 250 | 250 |
| x1 or x10 Scale: | 2500 | 2500 | 2500 |
| x10 or x100 Scale: | 25 K | 25 K | 25 K |
| x100 or x1000 Scale: | 250 K | 250 K | 250 K |

Audio Response: SAT
 Audio Divide: SAT
 Push Buttons: SAT
 Lamp: SAT
 Scaler/Digital: SAT

Are the Individual Counts Within 10% of the Average?

Fast / Slow Response Function Properly?

Comments Married as a set with: Model: 44-10

Serial #: PR155202

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration: 03/17/04

Performed by: Carl Hall
 Printed Name: Carl Hall

Reviewed by: [Signature] Date: 3/18/03

Entered in Computer Maintenance By: [Signature] Date: 3/18/03



Safety and Ecology Corporation

2800 Solway Road
Knoxville, TN 37931

Calibration Certificate

3/18/2003

Calibration Certificate for 44-10, Serial # PR155202, Bar Code # , Property # SEC-5155

Date: 03/17/03 Date Last Cal. Expires: 08/23/03 Technician: Carl Hall
Location: 9999 Reason For Calibration: Due for Calibration

EQUIPMENT USED DURING CALIBRATION

MODEL: 2221 SERIAL #: 157031 CAL DUE: 03/17/04
MODEL: SERIAL #: CAL DUE:

NIST TRACEABLE SOURCES USED

Table with 4 columns: SOURCE, ISOTOPE, ACTIVITY, ASSAY DATE. Row 1: 99CS250-0288, Cs-137, 8.8 uCi, 3/18/1999

COPY

AS FOUND DATA

AF Instrument Condition: SAT AL Instrument Condition: SAT

Efficiency from Last Cal.: 0.68 % HV From Last Calibration: 850 V Calibration Threshold: 10 mV

Table with 4 columns: HV, Center Count, Background Count, Probe Efficiency. Rows for AS FOUND and AS LEFT.

Is the As Found Efficiency Within 20% of the efficiency from the last cal.?

Reproducibility: Isotope: Cs-137 131338 132629 131888 Average: 131952

Are the individual counts within 10% of the average?

As Found Efficiency (overall) is within 20% of the last calibration and within 10% of the last calibration. N/A the Plateau Data and Proceed in Comments. Counting Rate is 122.100 cps. All other probe data is within 10% of the last calibration unless otherwise specified.

PLATEAU AND SET POINT DATA (CPM)

Table with 7 columns: High Voltage, Source Response, Background, HV, CENTER, Background, Efficiency. Row 1: N/A, V, Cs-137

Comments: Married as a set with: Model: 2221 Serial #: 157031

Does Instrument Meet Final Acceptance Criteria? Calibration Sticker Attached?

Date Instrument is Due For Next Calibration: 03/17/04

Performed by: [Signature] Reviewed by: [Signature] Date: 3/18/03

Printed Name: Carl Hall

Entered In Computer Inventory By: [Signature] Date: 3/18/03

Instrument Set 3

UVAP INITIAL SETUP / ACCEPTABLE RANGE DATA SHEET

L2221 SERIAL #: 190191 CAL DUE: 6/2/2004
PROBE: L44-10 SERIAL #: 199130 CAL DUE: 6/2/2004
SOURCE: Cs137 SERIAL #: 99cs250 Setup Date 9/4/2003
ACTIVITY: 35800 dpm
BKG COUNT TIME: 1MINUTE SOURCE COUNT TIME: 1 MINUTE
CALIBRATED OPERATING VOLTAGE: 900 THRESHOLD VALUE: 100

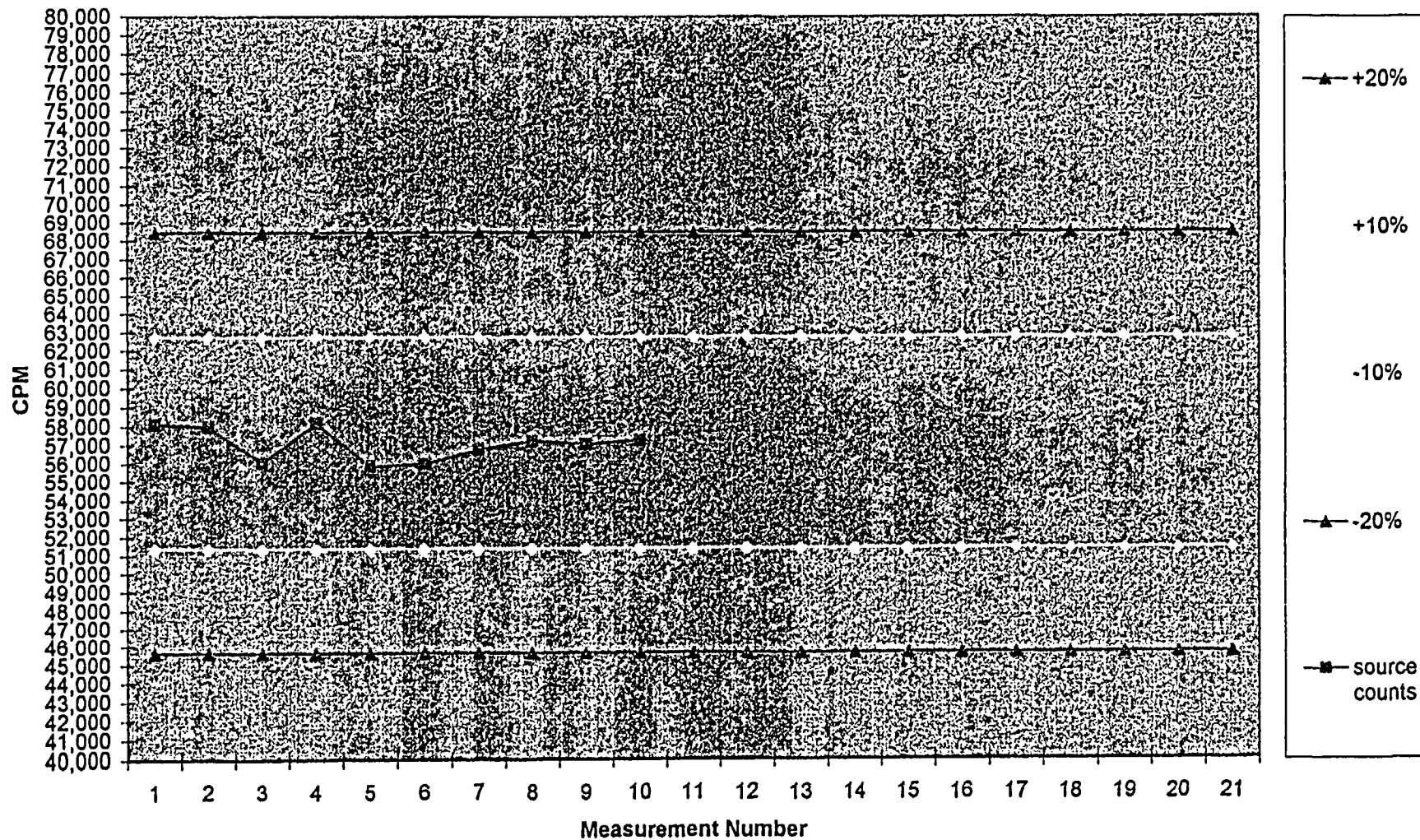
| COUNT # | SOURCE CPM | BKG CPM | NET SOURCE CTS | EFFICIENCY (D) |
|----------|------------|---------|----------------|----------------|
| 1 | 4,452 | 59 | 4,393 | N/A |
| 2 | 4,189 | 46 | 4,143 | N/A |
| 3 | 4,309 | 65 | 4,244 | N/A |
| 4 | 4,330 | 54 | 4,276 | N/A |
| 5 | 4,242 | 57 | 4,185 | N/A |
| 6 | 4,292 | 56 | 4,236 | N/A |
| 7 | 4,159 | 52 | 4,107 | N/A |
| 8 | 4,329 | 54 | 4,275 | N/A |
| 9 | 4,402 | 56 | 4,346 | N/A |
| 10 | 4,313 | 47 | 4,266 | N/A |
| 11 | | | | N/A |
| 12 | | | | N/A |
| 13 | | | | N/A |
| 14 | | | | N/A |
| 15 | | | | N/A |
| 16 | | | | N/A |
| 17 | | | | N/A |
| 18 | | | | N/A |
| 19 | | | | N/A |
| 20 | | | | N/A |
| 21 | | | | N/A |
| Averages | 7,157 | 55 | 4,247 | N/A |

+ 10% 4,672 -10% 3,822
 + 20% 5,097 -20% 3,398

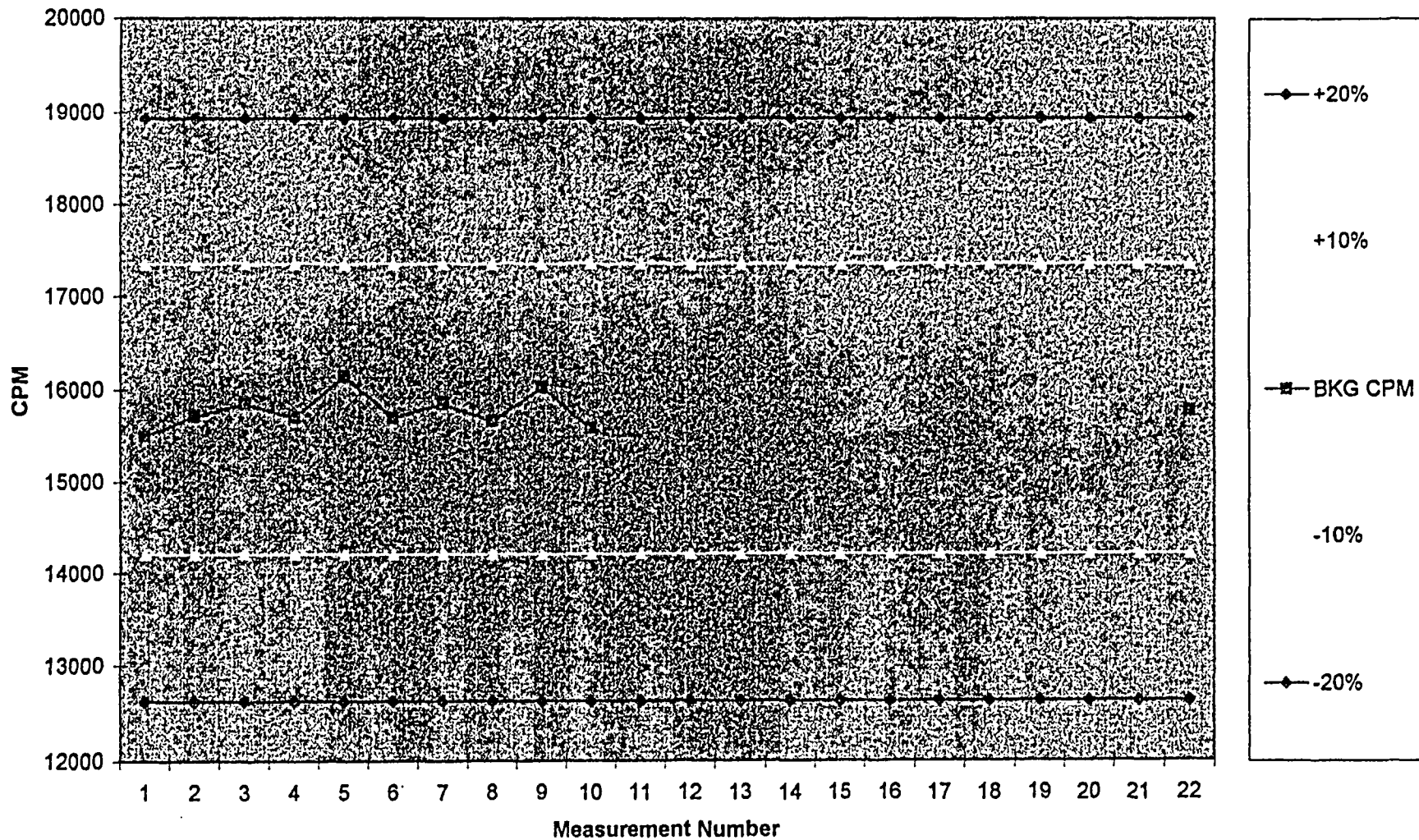
PERFORMED BY: Brad Myers DATE: 04/05/03
VIEWED BY: Frank Myers DATE: 04/05/03

Initial Source

Initial Setup Source Range 9/4/03
Instrument:L-2221 # 190191 Probe: L-44-10# 199130



Initial Setup Background Range 09/04/03
Instrument:L-2221 # 190191 Probe: L-44-10# 199130





Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

6/2/2003

Calibration Certificate for 2221, Serial # 190191, Bar Code # , Property # SEC-5293

Date: 06/02/03

Date Last Cal. Expires:

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2

SERIAL #: 132896

CAL DUE: 11/26/03

MODEL:

SERIAL #:

CAL DUE:

AS FOUND DATA

Geotropism: SAT

AF Instrument Condition: SAT

AL Instrument Condition: SAT

HIGH VOLTAGE

AS FOUND HV

AS LEFT HV

New Batteries?

AF Mechanical Zero: 0

(+/- 10% tolerance)

500 V:

509

AF

Threshold ratio: 100=10mV

AL Mechanical Zero: 0

1000 V:

1003

AF

AF THRESHOLD: 55 mV

AF HV Reading: 621 V

1500 V:

1496

AF

AL THRESHOLD: 10.0 mV

AL HV Reading: 950 V

RATE METER

| SCALE | RATE CPM | AS FOUND | % ERROR | AS LEFT | % ERROR |
|-----------------------|----------|----------|---------|---------|---------|
| x.1 or x1 | 100 | 100 | 0.00% | AF | 0.00% |
| | 250 | 250 | 0.00% | AF | 0.00% |
| | 400 | 400 | 0.00% | AF | 0.00% |
| x1 or x10 | 1000 | 1000 | 0.00% | AF | 0.00% |
| | 2500 | 2500 | 0.00% | AF | 0.00% |
| | 4000 | 4000 | 0.00% | AF | 0.00% |
| x10 or x100 (x1000) | 10K | 10 | 0.00% | AF | 0.00% |
| | 25K | 25 | 0.00% | AF | 0.00% |
| | 40K | 40 | 0.00% | AF | 0.00% |
| x100 or x1000 (x1000) | 100K | 100 | 0.00% | AF | 0.00% |
| | 250K | 250 | 0.00% | AF | 0.00% |
| | 400K | 400 | 0.00% | AF | 0.00% |

DIGITAL SCALER

| | | | |
|-----------------|--------------|---------------|--------------|
| AF 250: 250 | % ERR: 0.00% | AL 250: AF | % ERR: 0.00% |
| AF 2500: 2499 | % ERR: 0.04% | AL 2500: AF | % ERR: 0.04% |
| AF 25K: 24.99 K | % ERR: 0.04% | AL 25K: AF K | % ERR: 0.04% |
| AF 250K: 250 K | % ERR: 0.00% | AL 250K: AF K | % ERR: 0.00% |

Is the As Found Data Within 20% of the Set Point?

LOG SCALE

| | | | |
|----------------|--------------|---------------|--------------|
| AF 200: 200 | % ERR: 0.00% | AL 200: AF | % ERR: 0.00% |
| AF 2000: 2000 | % ERR: 0.00% | AL 2000: AF | % ERR: 0.00% |
| AF 20K: 20 K | % ERR: 0.00% | AL 20K: AF K | % ERR: 0.00% |
| AF 200K: 200 K | % ERR: 0.00% | AL 200K: AF K | % ERR: 0.00% |

Is the As Found Data Within 20% of the Set Point?

Is the As Found Data Within 20% of the Set Point?

REPRODUCIBILITY

| | | | |
|----------------------|-------|-------|-------|
| x.1 or x1 Scale: | 250 | 250 | 250 |
| x1 or x10 Scale: | 2500 | 2500 | 2500 |
| x10 or x100 Scale: | 25 K | 25 K | 25 K |
| x100 or x1000 Scale: | 250 K | 250 K | 250 K |

Audio Response: SAT

Audio Divide: SAT

Push Buttons: SAT

Lamp: SAT

Scaler/Digital: SAT

Are the Individual Counts Within 10% of the Average?

Fast / Slow Response Function Properly?

Comments

Married as a set with: Model: 44-10

Serial #: PR199130

Initial calibration of meter.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

06/02/04

Performed by:

[Signature]

Reviewed by:

[Signature]

Date: 6-2-03

Printed Name:

Carl Hall

Entered in Computer Maintenance By:

[Signature]

Date: 6/2/03



Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

6/2/2003

Calibration Certificate for 44-10, Serial # PR199130, Bar Code # , Property # SEC-5290

Date: 06/02/03 Date Last Cal. Expires: Technician: Carl Hall

Location: 9999 Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 2221 SERIAL #: 190191 CAL DUE: 06/02/04
MODEL: SERIAL #: CAL DUE:

NIST TRACEABLE SOURCES USED

| SOURCE | ISOTOPE | ACTIVITY | 2 σ | ASSAY DATE |
|--------------|---------|----------|------------|------------|
| 99CS250-0288 | Cs-137 | 8.8 uCi | | 3/18/1999 |

AS FOUND DATA

AF Instrument Condition: SAT

AL Instrument Condition: SAT

Efficiency from Last Cal.: % HV From Last Calibration: V Calibration Threshold: 10 mV

| | HV | Center Count | Background Count | Probe Efficiency |
|-----------|----|--------------|------------------|------------------|
| AS FOUND: | V | | | Cs-137 [] |
| AS LEFT: | V | | | Cs-137 [] |

Is the As Found Efficiency Within 20% of the efficiency from the last cal.?

Reproducibility: Isotope: Cs-137 128746 128943 128416 Average: 128702

Are the individual counts within 10% of the average?

If As Found Efficiency (even after repair) is within 10% of the last calibration and uniformly is $\pm 10\%$, the technician may N/A the Plateau Data and proceed to Comments. Geometry: Na
Probes are 4" from source. All other probes are in contact with surface unless otherwise specified.

PLATEAU AND SET POINT DATA (CPM)

| High Voltage | Source Response | Background | HV | CENTER | Background | Efficiency |
|--------------|-----------------|------------|-------|--------|------------|----------------|
| 850 | 123188 | 4305 | 950 V | 128492 | 4404 | Cs-137 [0.64%] |
| 875 | 125845 | 4340 | | | | [] |
| 900 | 127633 | 4488 | | | | [] |
| 925 | 128155 | 4304 | | | | [] |
| 950 | 128757 | 4363 | | | | [] |
| 975 | 129120 | 4350 | | | | [] |
| 1000 | 128616 | 4444 | | | | [] |
| 1025 | 129496 | 4531 | | | | [] |
| 1050 | 130134 | 4299 | | | | [] |

Comments: Married as a set with: Model: 2221 Serial #: 190191

Initial calibration of new probe.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration: 06/02/04

Performed by: [Signature] Reviewed by: [Signature] Date: 6-2-03

Printed Name: Carl Hall

Entered in Computer Inventory By: [Signature] Date: 6/2/03

Instrument Set 4

Not Used for Final Survey

Instrument Set 5

Not Used for Final Survey

Instrument Set 6

UVAP

DAILY FIELD SOURCE CHECK LOG - FIELD INSTRUMENT

Source Type: Tc-99/98TC4700730 Source Activity: 35800 DPM

Instrument: L2221 S/N: 103942 Voltage: 1775 Cal. Due: 3/27/04

Detector: L 43-37 S/N: 149715 Threshold: 100 Cal. Due: 3/27/04

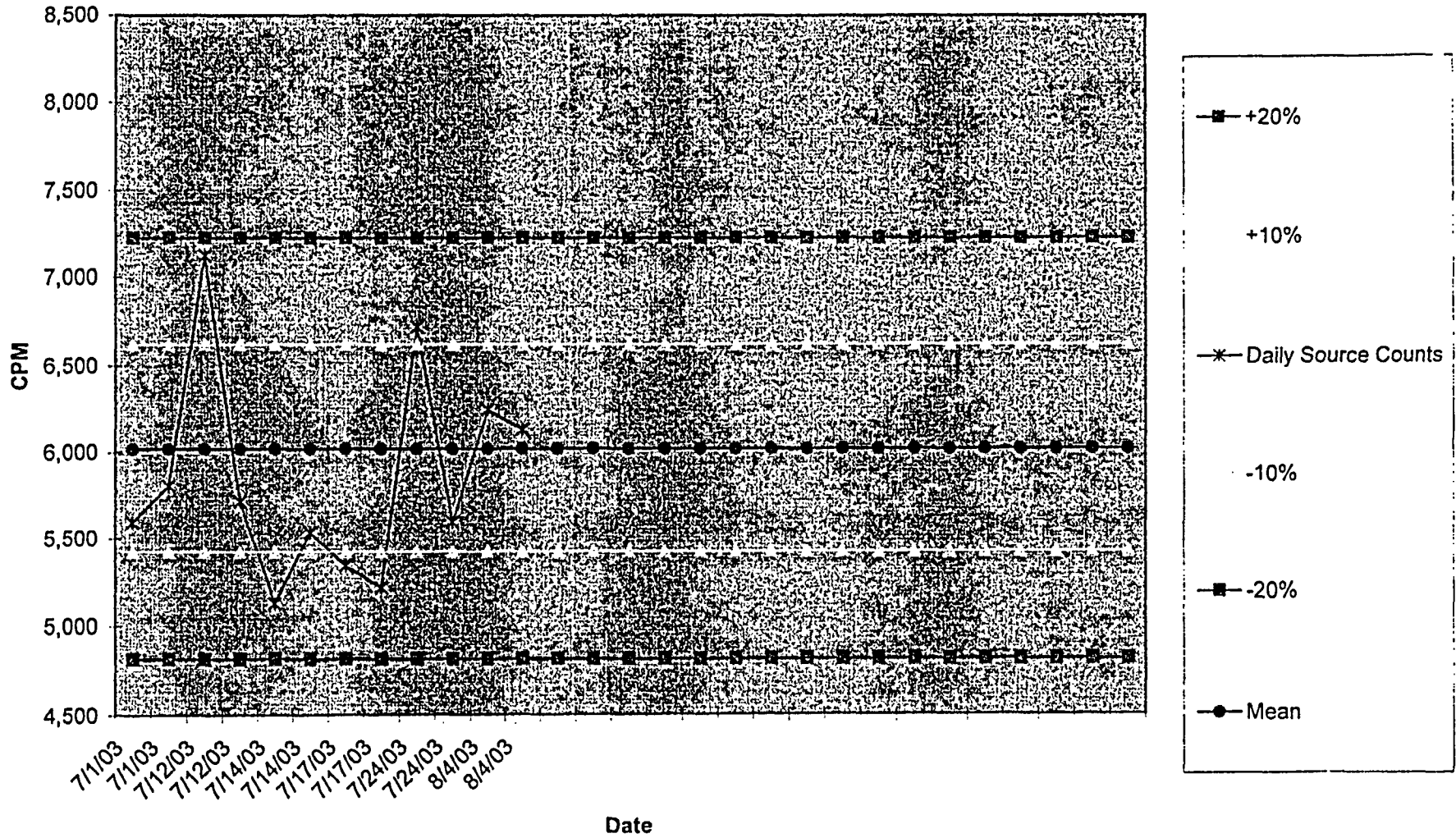
| Date | Time | Source Check Gross CPM (A) | Bkg. cpm (B) | Net | Eff. | HV | Batt. | Spkr. | Phys. | By |
|---------|-------|----------------------------|--------------|--------|-------|------|-------|-------|-------|----|
| | | | | Counts | | | | | | |
| 7/1/03 | 09:00 | 6,261 | 667 | 5594 | 0.114 | 1775 | 5.2 | ok | ok | JS |
| 7/1/03 | 15:40 | 6,819 | 986 | 5805 | 0.114 | 1771 | 5.2 | ok | ok | BL |
| 7/12/03 | 13:30 | 8,001 | 888 | 7123 | 0.114 | 1775 | 6.1 | ok | ok | BL |
| 7/12/03 | 16:00 | 6,599 | 884 | 5715 | 0.114 | 1775 | 6 | ok | ok | BL |
| 7/14/03 | 7:41 | 5,932 | 806 | 5126 | 0.114 | 1775 | 6 | ok | ok | BL |
| 7/14/03 | 10:15 | 6,384 | 852 | 5532 | 0.114 | 1775 | 6 | ok | ok | BL |
| 7/17/03 | 8:10 | 6,167 | 829 | 5338 | 0.114 | 1775 | 5.7 | ok | ok | BL |
| 7/17/03 | 9:38 | 6,053 | 840 | 5213 | 0.114 | 1775 | 5.7 | ok | ok | BL |
| 7/24/03 | 16:00 | 7,542 | 821 | 6721 | 0.114 | 1775 | 5.7 | ok | ok | JS |
| 7/24/03 | 17:15 | 6,391 | 797 | 5594 | 0.114 | 1776 | 5.7 | ok | ok | JS |
| 8/4/03 | 10:05 | 7,146 | 902 | 6244 | 0.114 | 1775 | 5.6 | ok | ok | JS |
| 8/4/03 | 17:15 | 7,100 | 971 | 6129 | 0.114 | 1776 | 5.5 | ok | ok | JS |
| | | | | | | | | | | |
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Remarks _____

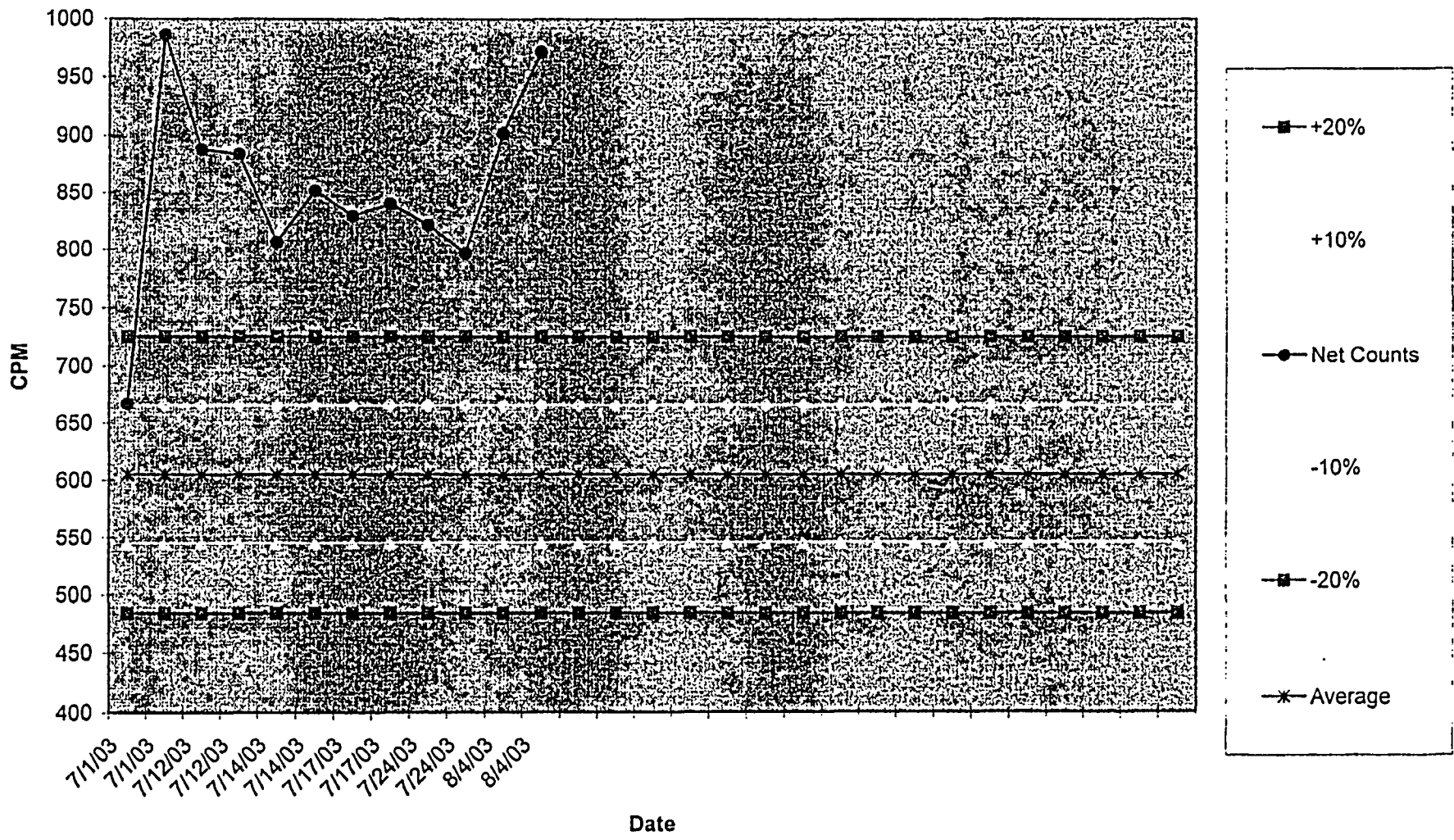
+20% 7,224
 -20% 4,816

(A) - (B) = (D) (Daily Calculated Efficiency)
 Activity

Daily Source Range
Instrument:L-2221 # 103942 Probe: L-43-37 # 149715



Daily Background Range
Instrument:L-2221 # 103942 Probe: L-43-37 # 149715



UVAP
INITIAL SETUP / ACCEPTABLE RANGE DATA SHEET

INSTRUMENT: L2221 SERIAL #: 103942 CAL DUE: 3/27/04
 PROBE: L 43-37 SERIAL #: 149715 CAL DUE: 3/27/04
 SOURCE: Tc-99 SERIAL #: C4700730 Setup Date: 3/31/03
 ACTIVITY: 35,800 μ Ci
 BKG COUNT TIME: 1MINUTE SOURCE COUNT TIME: 1 MINUTE
 CALIBRATED OPERATING VOLTAGE: 1775 THRESHOLD VALUE: 100

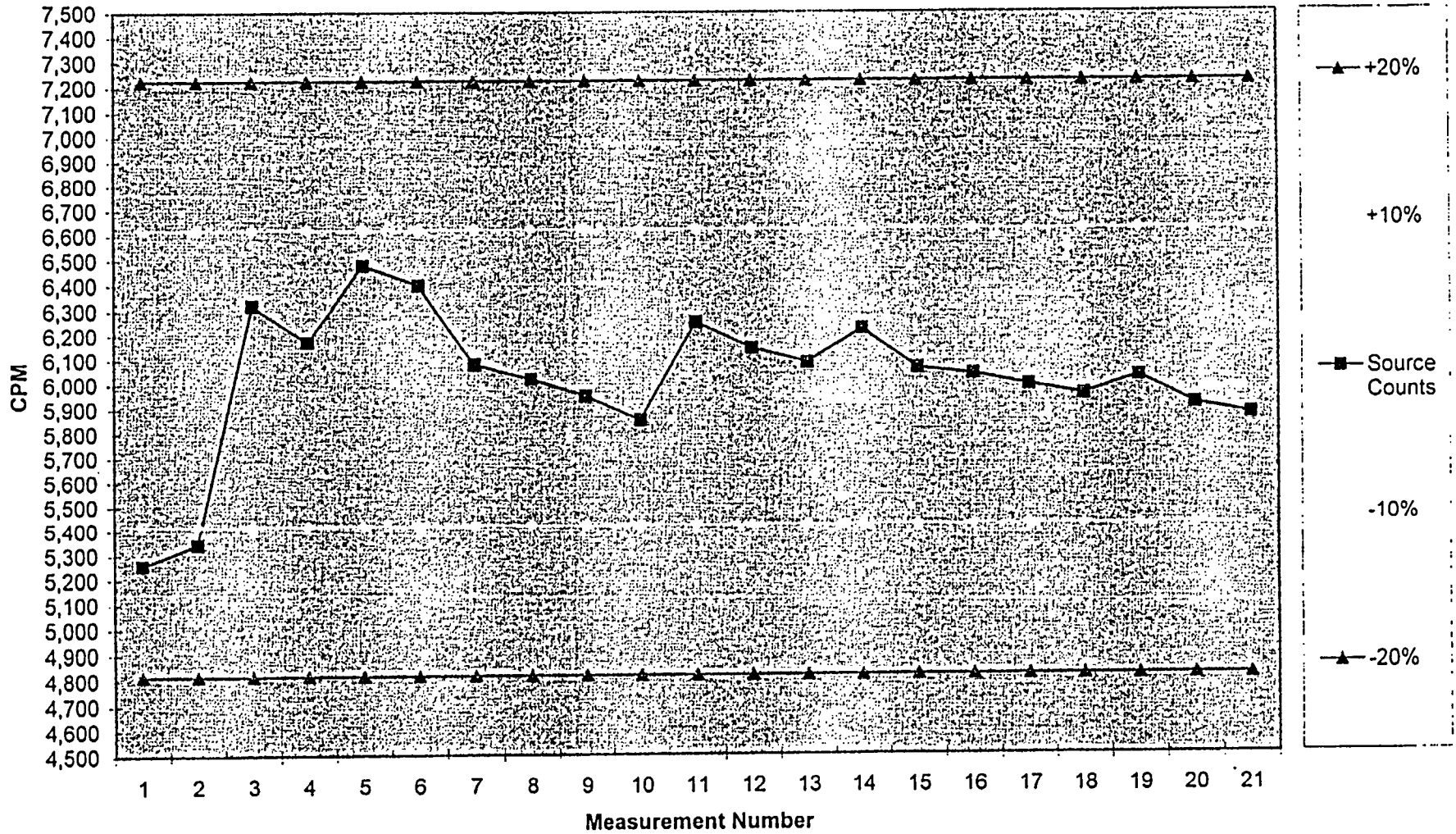
| COUNT # | SOURCE CPM | BKG CPM | NET SOURCE CTS | EFFICIENCY (D) |
|----------|------------|---------|----------------|----------------|
| 1 | 5,877 | 619 | 5,258 | N/A |
| 2 | 5,924 | 581 | 5,343 | N/A |
| 3 | 6,944 | 624 | 6,320 | N/A |
| 4 | 6,816 | 644 | 6,172 | N/A |
| 5 | 7,071 | 593 | 6,478 | N/A |
| 6 | 6,998 | 599 | 6,399 | N/A |
| 7 | 6,680 | 602 | 6,078 | N/A |
| 8 | 6,665 | 646 | 6,019 | N/A |
| 9 | 6,534 | 586 | 5,948 | N/A |
| 10 | 6,439 | 589 | 5,850 | N/A |
| 11 | 6,798 | 548 | 6,250 | N/A |
| 12 | 6,775 | 632 | 6,143 | N/A |
| 13 | 6,694 | 610 | 6,084 | N/A |
| 14 | 6,821 | 599 | 6,222 | N/A |
| 15 | 6,633 | 573 | 6,060 | N/A |
| 16 | 6,659 | 623 | 6,036 | N/A |
| 17 | 6,605 | 614 | 5,991 | N/A |
| 18 | 6,546 | 593 | 5,953 | N/A |
| 19 | 6,606 | 580 | 6,026 | N/A |
| 20 | 6,543 | 631 | 5,912 | N/A |
| 21 | 6,501 | 630 | 5,871 | N/A |
| Averages | 6,625 | 605 | 6,020 | N/A |

+ 10% 6,622 -10% 5,418
 + 20% 7,224 - 20% 4,816

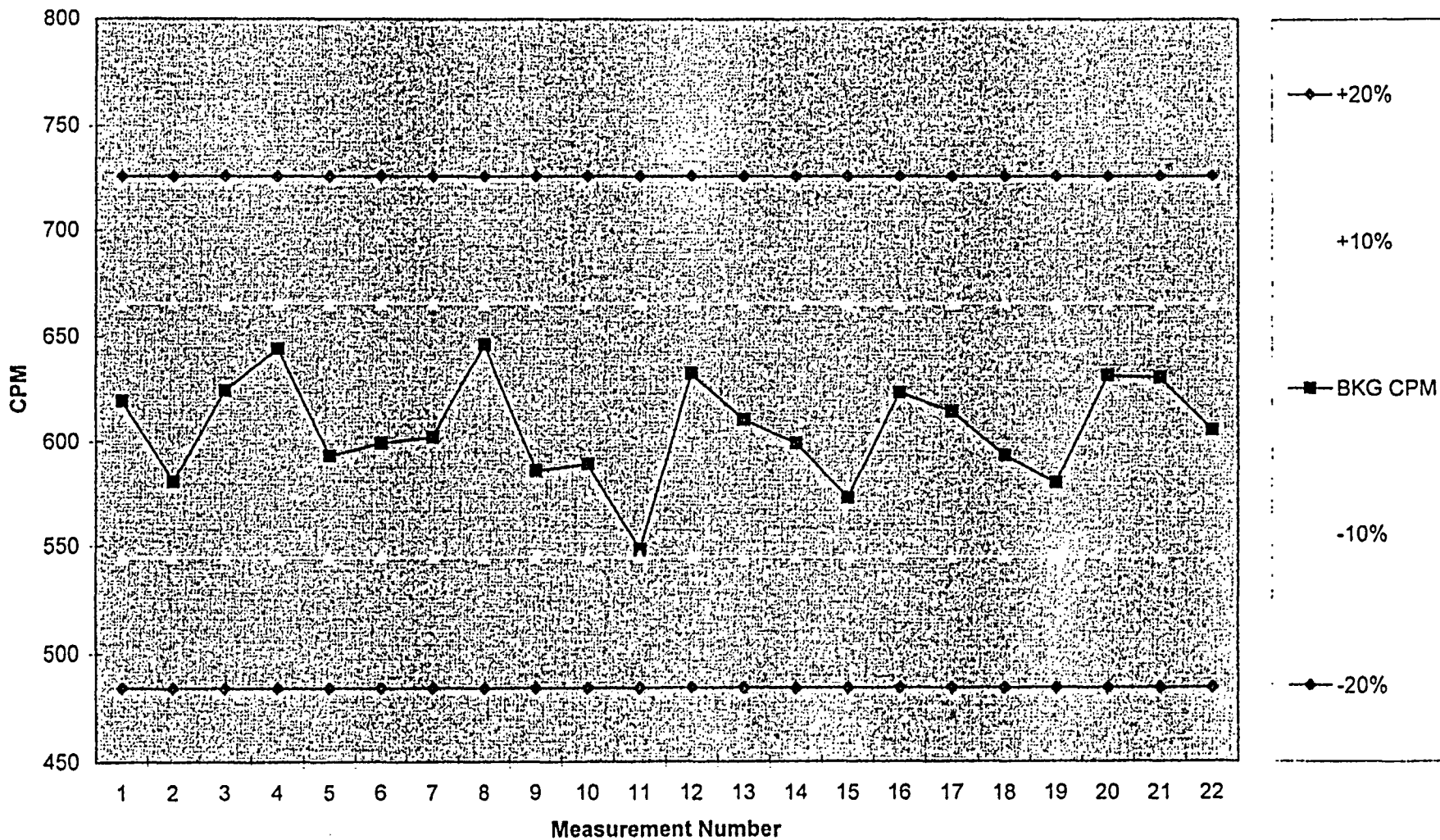
PERFORMED BY: Brad Myers DATE: 03/31/03
 VIEWED BY: Frank Myers DATE: 03/31/03

In. Source

Initial Setup Source Range 3/31/00
Instrument: L-2221 # 103942 Probe: L-43-37 # 149715



Initial Setup Background Range 3/31/03
Instrument:L-2221 # 103942 Probe: L-43-37 # 149715





Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

3/27/2003

Calibration Certificate for 2221, Serial # 103942, Bar Code # ,Property # SEC-5208

Date: 03/27/03

Date Last Cal. Expires: 04/04/03

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Due for Calibration

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2 SERIAL #: 132896 CAL DUE: 11/26/03

MODEL: SERIAL #: CAL DUE:

AS FOUND DATA

Geotropism: SAT AF Instrument Condition: SAT AL Instrument Condition: SAT

| HIGH VOLTAGE | AS FOUND HV | AS LEFT HV | <input type="checkbox"/> New Batteries? | AF Mechanical Zero: | AL Mechanical Zero: |
|---------------------|--------------|------------|---|-----------------------|---------------------|
| (+/- 10% tolerance) | 500 V: 506 | AF | Threshold ratio: 100=10mV | 0 | 0 |
| | 1000 V: 1000 | AF | AF THRESHOLD: 10.0 mV | 1068 V | |
| | 1500 V: 1494 | AF | AL THRESHOLD: 10.0 mV | AL HV Reading: 1250 V | |

RATE METER

| SCALE | RATE CPM | AS FOUND | % ERROR | AS LEFT | % ERROR |
|-----------------------|----------|----------|---------|---------|---------|
| x.1 or x1 | 100 | 100 | 0.00% | AF | 0.00% |
| | 250 | 250 | 0.00% | AF | 0.00% |
| | 400 | 395 | 1.25% | AF | 1.25% |
| x1 or x10 | 1000 | 1000 | 0.00% | AF | 0.00% |
| | 2500 | 2500 | 0.00% | AF | 0.00% |
| | 4000 | 3950 | 1.25% | AF | 1.25% |
| x10 or x100 (x1000) | 10K | 10 | 0.00% | AF | 0.00% |
| | 25K | 25 | 0.00% | AF | 0.00% |
| | 40K | 39.5 | 1.25% | AF | 1.25% |
| x100 or x1000 (x1000) | 100K | 100 | 0.00% | AF | 0.00% |
| | 250K | 250 | 0.00% | AF | 0.00% |
| | 400K | 395 | 1.25% | AF | 1.25% |
| SCALER: | | 250 | 0.00% | AF | 0.00% |

LOG SCALE

| | | | |
|----------|-------|----------|--------|
| AF 200: | 200 | % ERROR: | 0.00% |
| AF 2000: | 2000 | % ERROR: | 0.00% |
| AF 20K: | 19 K | % ERROR: | 5.00% |
| AF 200K: | 180 K | % ERROR: | 10.00% |
| AL 200: | AF | % ERROR: | 0.00% |
| AL 2000: | AF | % ERROR: | 0.00% |
| AL 20K: | AF K | % ERROR: | 5.00% |
| AL 200K: | AF K | % ERROR: | 10.00% |

Is the As Found Data Within 20% of the Set Point?

Is the As Found Data Within 20% of the Set Point?

REPRODUCIBILITY

| | | | |
|----------------------|-------|-------|-------|
| x.1 or x1 Scale: | 250 | 250 | 250 |
| x1 or x10 Scale: | 2500 | 2500 | 2500 |
| x10 or x100 Scale: | 25 K | 25 K | 25 K |
| x100 or x1000 Scale: | 250 K | 250 K | 250 K |

Audio Response: SAT
 Audio Divide: SAT
 Push Buttons: SAT
 Lamp: SAT
 Scaler/Digital: SAT

Are the Individual Counts Within 10% of the Average?

Fast / Slow Response Function Properly?

Comments

Married as a set with: Model: 43-37

Serial #: PR149715

Also calibrated as a married set to 43-68 serial # PR160790.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

03/27/04

Performed by:

[Signature]

Reviewed by:

[Signature]

Date:

3/27/03

Printed Name:

Carl Hall

Entered In Computer Maintenance By:

[Signature]

Date:

3/27/03



Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

3/27/2003

Calibration Certificate for 43-37, Serial # PR149715, Bar Code # ,Property # SEC-5209

Date: 03/27/03

Date Last Cal. Expires: 07/16/03

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 2221

SERIAL #: 103942

CAL DUE 03/27/04

MODEL:

SERIAL #:

CAL DUE

NIST TRACEABLE SOURCES USED

SOURCE

ISOTOPE

ACTIVITY

ASSAY DATE

4071-02

Th-230

35400 dpm

2/11/2003

4072-02

Tc-99

29800 dpm

2/6/2003

4076-02

Sr-90

16600 dpm

2/1/2003

4079-02

Pu-239

29300 dpm

2/11/2003

AS FOUND DATA

AF Instrument Condition: SAT

SAT

AL Instrument Condition: SAT

Efficiency from last cal.

Setpoints from last cal.: HV (Alpha): 1300 V

HV (Beta): 1775 V

Threshold: 10 mV

Pu: 22.68 %

Tc: 24.68 %

AF Response in CPM: Alpha

Beta

2nd AF Response in CPM: Alpha

Beta

Th: 20.45 %

Sr: 31.03 %

Background: 2

1216

(after repair)

Pu-239: 6428

8503

AF Efficiencies: 21.93%

24.45%

Th-230

Sr-90

Th-230

Sr-90

Th-230 / Sr-90: 7897 / 7039

22.80%

35.08%

Is the As Found Data Within 20% of the efficiency from the last cal.?

Reproducibility: Isotope: Sr-90

7033

7059

7037

Average: 7043.0

Are the individual counts within 10% of the average?

If the As Found data (even after repair) is within 10% of the last calibration, then the technician may N/A Plateau Data and go directly to Comments. Geometry is the same as the last calibration unless otherwise specified.

Alpha Source: Th-230

PLATEAU DATA

Beta Source: Tc-99

| HV (Alpha) | Response (CPM): | | Net Eff. |
|---------------|-----------------|-------|----------|
| | A ch. | A ch. | |
| N/A | | | |
| | | | |
| | | | |
| | | | |

| HV (Beta) | Response (CPM): | | Net Eff. |
|--------------|-----------------|-------|----------|
| | B ch. | B ch. | |
| N/A | | | |
| | | | |
| | | | |
| | | | |

BACKGROUND

Alpha HV Pu-239 Th-230
CPM CPM

Beta HV Tc-99 Sr-90
CPM CPM

AL Efficiencies: [] []

AL Efficiencies: [] []

Comments:

Married as a set with: Model: 2221

Serial #: 103942

Calibrated as a married set.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

03/27/04

Performed by: Carl Hall

Reviewed by: [Signature]

Date: 3/27/03

Printed Name: Carl Hall

Entered in Computer Inventory By: [Signature]

Date: 3/27/03

Instrument Set 7



UVAP DAILY FIELD SOURCE CHECK LOG - FIELD INSTRUMENT

Source Type: Tc-99/98TC4700730 Source Activity: 35800 DPM

Instrument: L2221 S/N: 172051 Voltage: 1800 Cal. Due: 4/2/04

Detector: L 43-37 S/N: 161367 Threshold: 100 Cal. Due: 4/2/04

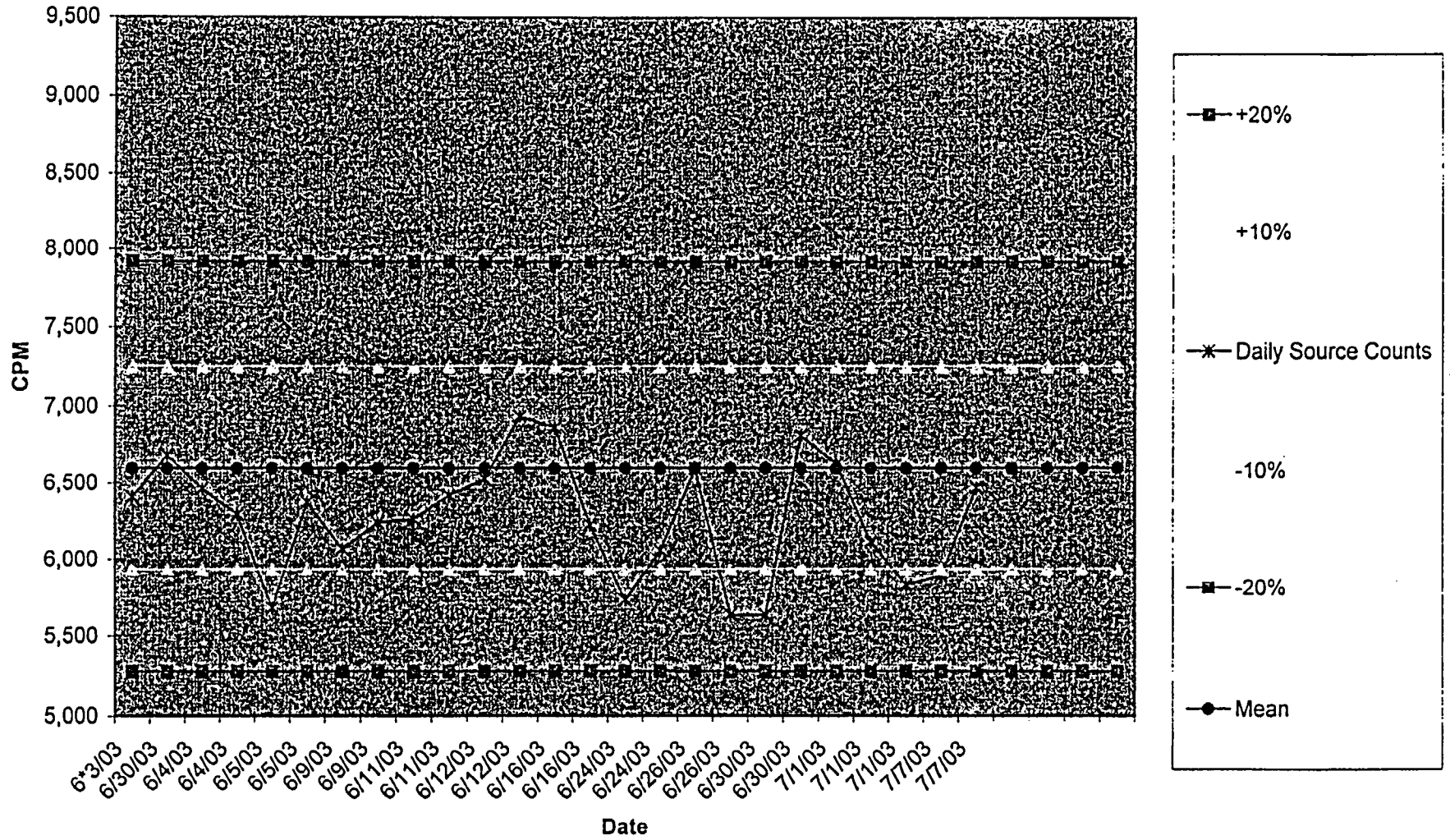
| Date | Time | Source Check Gross CPM (A) | Bkg. cpm (B) | Net | Eff. | HV | Batt. | Spkr. | Phys. | By |
|---------|-------|-------------------------------|-----------------|--------|-------|------|-------|-------|-------|----|
| | | | | Counts | | | | | | |
| 6/3/03 | 7:55 | 7,132 | 723 | 6409 | 0.109 | 1800 | 5.2 | ok | ok | JS |
| 6/30/03 | 17:00 | 7,562 | 880 | 6680 | 0.109 | 1800 | 5.2 | ok | ok | JS |
| 6/4/03 | 8:10 | 7,249 | 786 | 6463 | 0.109 | 1800 | 5.3 | ok | ok | JS |
| 6/4/03 | 17:20 | 7,002 | 709 | 6293 | 0.109 | 1800 | 5.3 | ok | ok | JS |
| 6/5/03 | 8:10 | 6,501 | 823 | 5678 | 0.109 | 1800 | 5.2 | ok | ok | JS |
| 6/5/03 | 17:05 | 7,239 | 865 | 6374 | 0.109 | 1800 | 5.2 | ok | ok | JS |
| 6/9/03 | 13:30 | 6,957 | 891 | 6066 | 0.109 | 1800 | 5.2 | ok | ok | JS |
| 6/9/03 | 17:10 | 7,090 | 854 | 6236 | 0.109 | 1801 | 5.1 | ok | ok | JS |
| 6/11/03 | 8:00 | 7,037 | 775 | 6262 | 0.109 | 1800 | 5.2 | ok | ok | JS |
| 6/11/03 | 14:55 | 7,493 | 876 | 6417 | 0.109 | 1800 | 5.2 | ok | ok | JS |
| 6/12/03 | 7:50 | 7,409 | 883 | 6526 | 0.109 | 1800 | 5.2 | ok | ok | JS |
| 6/12/03 | 16:45 | 7,782 | 849 | 6933 | 0.109 | 1800 | 5.2 | ok | ok | JS |
| 6/16/03 | 8:00 | 7,691 | 831 | 6860 | 0.109 | 1801 | 5.2 | ok | ok | JS |
| 6/16/03 | 17:15 | 7,029 | 804 | 6225 | 0.109 | 1801 | 5.2 | ok | ok | JS |
| 6/24/03 | 9:45 | 6,428 | 698 | 5730 | 0.109 | 1801 | 5.6 | ok | ok | BL |
| 6/24/03 | 10:20 | 6,820 | 773 | 6057 | 0.109 | 1800 | 5.6 | ok | ok | BL |
| 6/26/03 | 11:35 | 7,369 | 777 | 6592 | 0.109 | 1800 | 5.6 | ok | ok | JS |
| 6/26/03 | 17:20 | 6,494 | 860 | 5634 | 0.109 | 1800 | 5.5 | ok | ok | JS |
| 6/26/03 | 14:17 | 6,435 | 803 | 5632 | 0.109 | 1800 | 5.5 | ok | ok | BL |
| 6/30/03 | 15:40 | 7,698 | 829 | 6869 | 0.109 | 1800 | 5.5 | ok | ok | JS |
| 7/1/03 | 8:15 | 7,400 | 778 | 6622 | 0.109 | 1800 | 5.5 | ok | ok | BM |
| 7/1/03 | 11:40 | 6,867 | 754 | 6113 | 0.109 | 1800 | 5.4 | ok | ok | AT |
| 7/1/03 | 14:50 | 6,719 | 887 | 5832 | 0.109 | 1799 | 5.4 | ok | ok | BM |
| 7/7/03 | 13:13 | 6,791 | 900 | 5891 | 0.109 | 1798 | 5.4 | ok | ok | BL |
| 7/7/03 | 17:00 | 7,389 | 923 | 6466 | 0.109 | 1800 | 5.3 | ok | ok | JS |
| | | | | | | | | | | |
| | | | | | | | | | | |
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Remarks _____

+20% 7,915
-20% 5,276

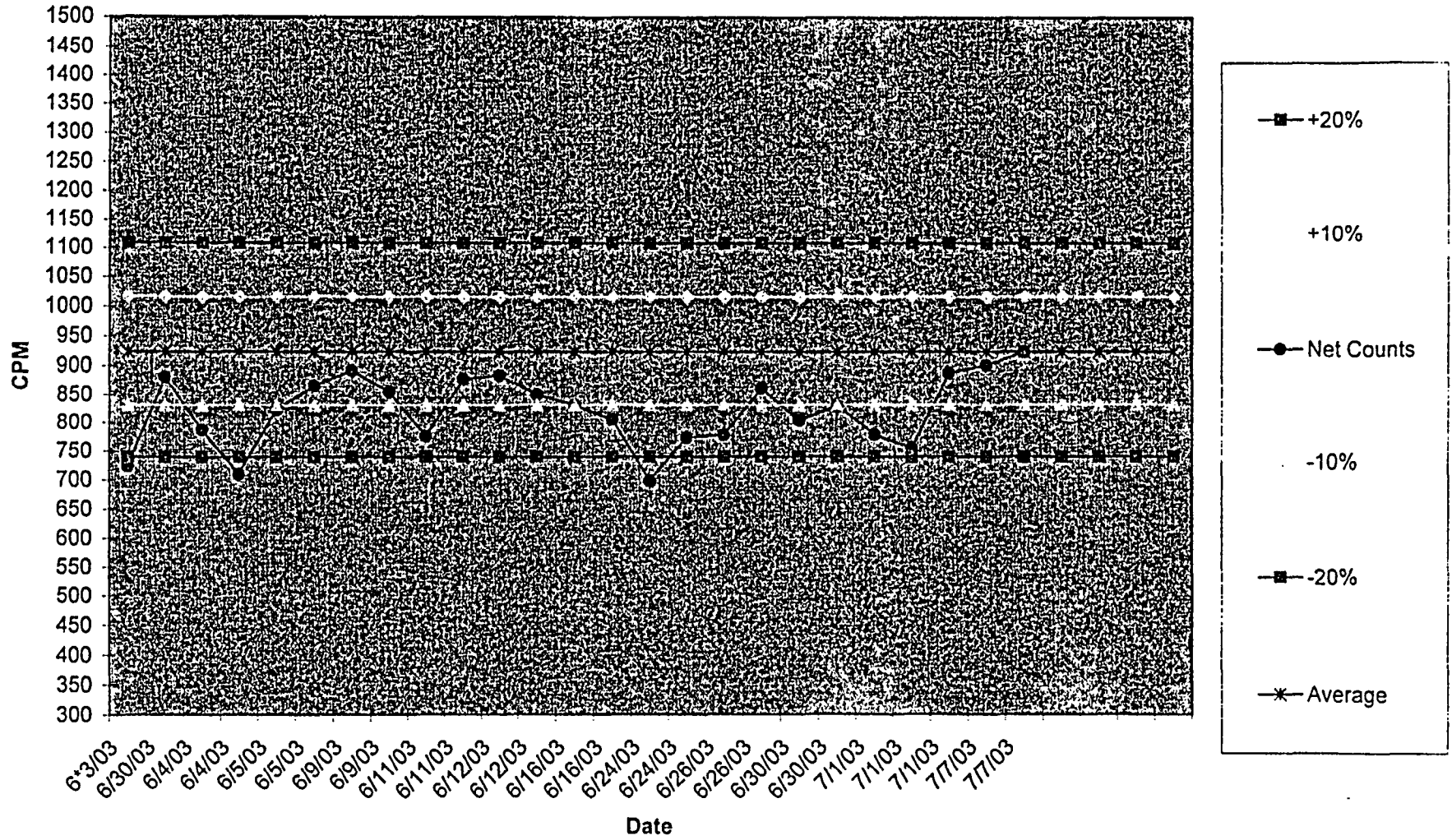
(A) - (B) = (D) (Daily Calculated Efficiency)
Activity

Daily Source Range
Instrument:L-2221 # 172051 Probe: L-43-37 # 161367



Daily Background Range

Instrument: L-2221 # 172051 Probe: L-43-37 # 161367



UVAP
INITIAL SETUP / ACCEPTABLE RANGE DATA SHEET

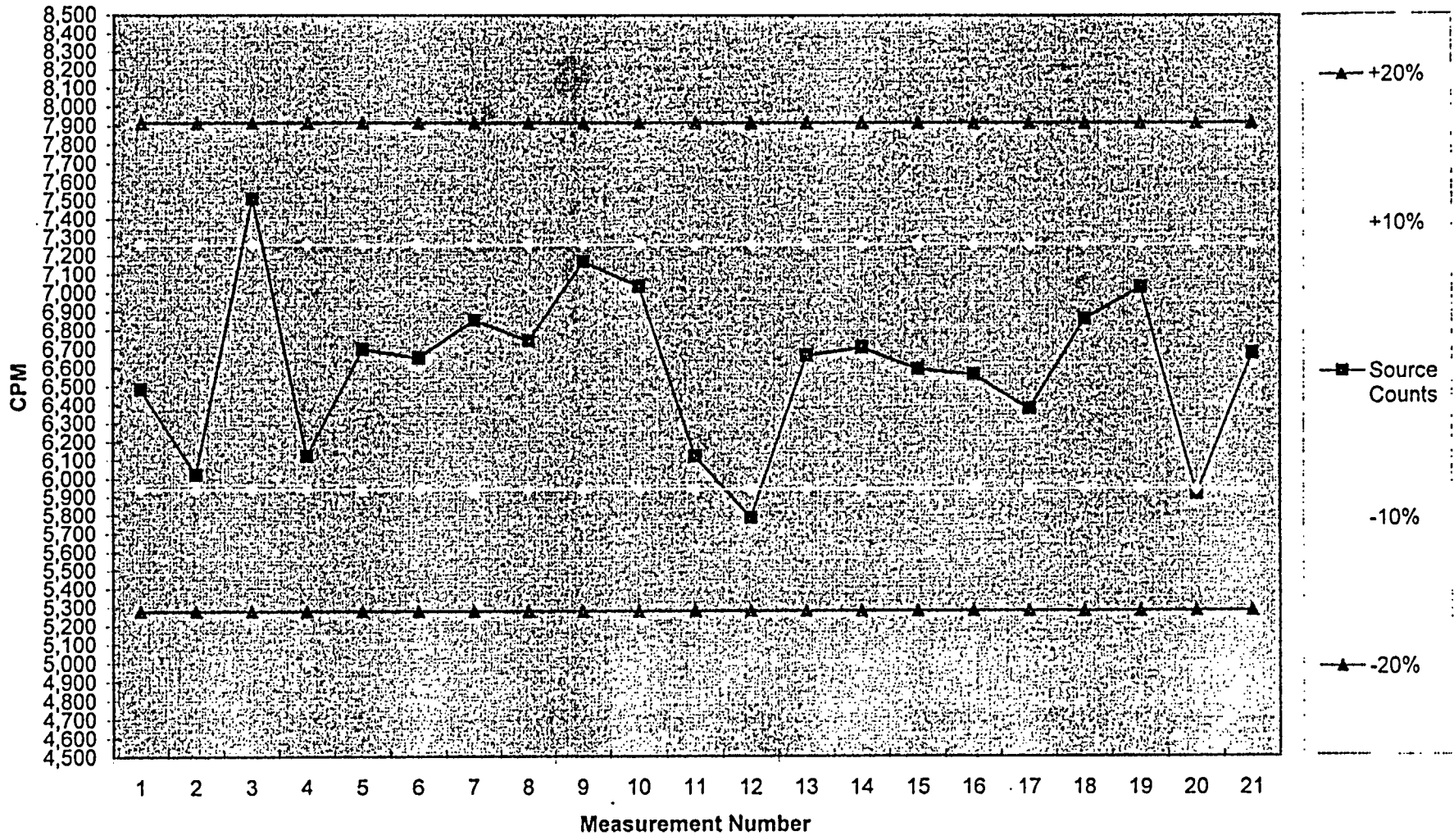
INSTRUMENT: L2221 SERIAL #: 172051 CAL DUE: 4/2/04
 PROBE: L 43-37 SERIAL #: 161367 CAL DUE: 4/2/04
 SOURCE: Tc-99 SERIAL #: C4700730 Setup Date: 5/12/03
 ACTIVITY: 25800 dpm
 BKG COUNT TIME: 1MINUTE SOURCE COUNT TIME: 1 MINUTE
 CALIBRATED OPERATING VOLTAGE: 1800 THRESHOLD VALUE: 100

| COUNT # | SOURCE CPM | BKG CPM | NET SOURCE CTS | EFFICIENCY (D) |
|----------|------------|---------|----------------|----------------|
| 1 | 7,428 | 946 | 6,482 | N/A |
| 2 | 6,950 | 929 | 6,021 | N/A |
| 3 | 8,410 | 901 | 7,509 | N/A |
| 4 | 7,071 | 950 | 6,121 | N/A |
| 5 | 7,673 | 977 | 6,696 | N/A |
| 6 | 7,581 | 930 | 6,651 | N/A |
| 7 | 7,747 | 897 | 6,850 | N/A |
| 8 | 7,648 | 907 | 6,741 | N/A |
| 9 | 8,070 | 905 | 7,165 | N/A |
| 10 | 7,962 | 931 | 7,031 | N/A |
| 11 | 6,995 | 879 | 6,116 | N/A |
| 12 | 6,754 | 972 | 5,782 | N/A |
| 13 | 7,650 | 989 | 6,661 | N/A |
| 14 | 7,642 | 939 | 6,703 | N/A |
| 15 | 7,499 | 911 | 6,588 | N/A |
| 16 | 7,446 | 889 | 6,557 | N/A |
| 17 | 7,247 | 876 | 6,371 | N/A |
| 18 | 7,761 | 906 | 6,855 | N/A |
| 19 | 7,942 | 917 | 7,025 | N/A |
| 20 | 6,864 | 955 | 5,909 | N/A |
| 21 | 7,549 | 878 | 6,671 | N/A |
| Averages | 7,518 | 923 | 6,595 | N/A |

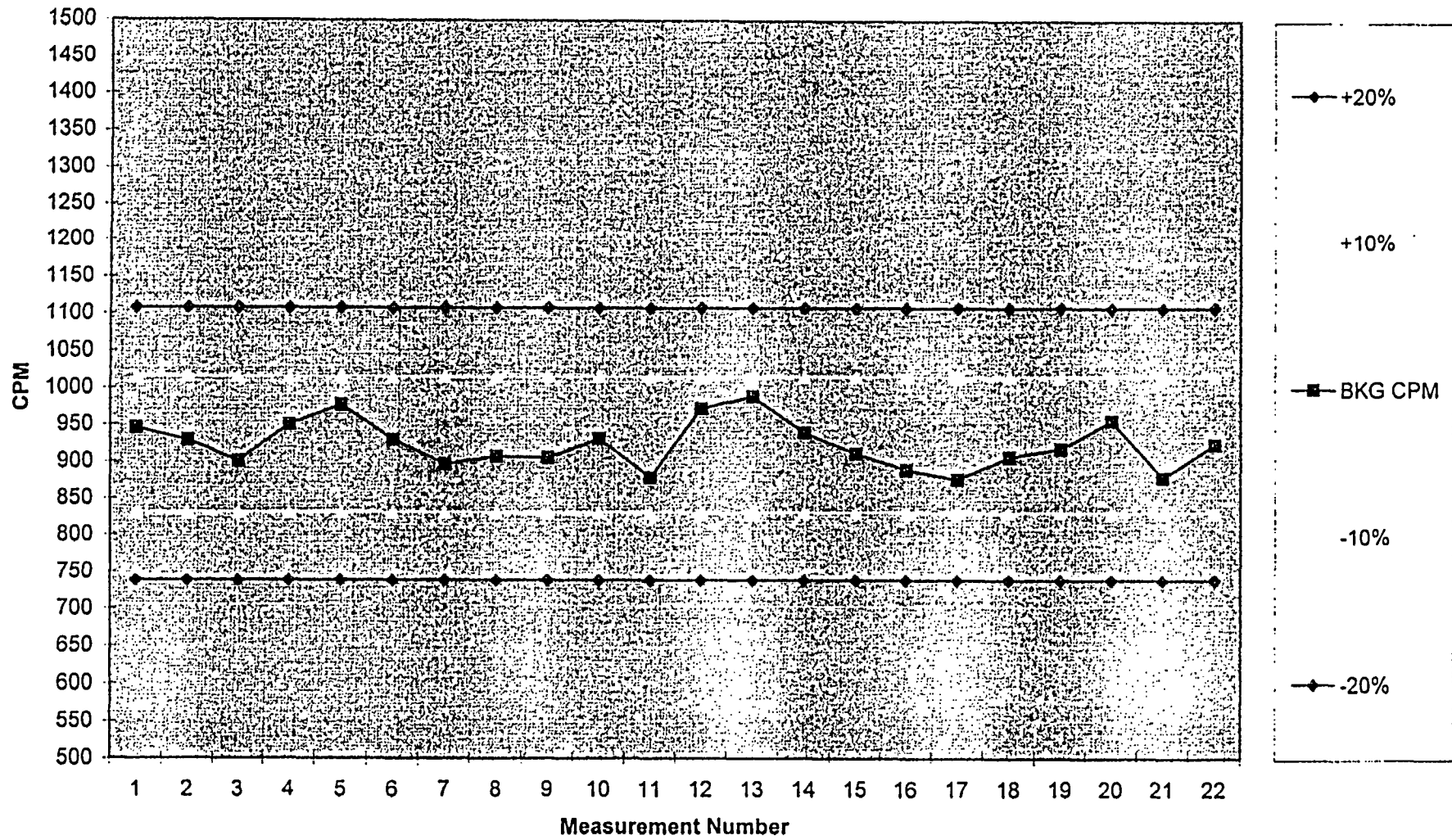
+ 10% 7,255 -10% 5,936
 + 20% 7,915 - 20% 5,276

PERFORMED BY: Jason Strand DATE: 05/12/03
 RECHECKED BY: Frank Myers DATE: 05/12/03

Initial Setup Source Range 5/12/03
Instrument: L-2221 # 172051 Probe: L-43-37 # 161367



Initial Setup Background Range 5/12/03
Instrument:L-2221 # 172051 Probe: L-43-37 # 161367





Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

9/2/2003

Calibration Certificate for 2221, Serial # 172051, Bar Code # , Property # SEC-5219

Date: 09/02/03

Date Last Cal. Expires: 04/02/04

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2 SERIAL #: 132896 CAL DUE: 11/26/03

MODEL: SERIAL #: CAL DUE:

AS FOUND DATA

Geotropism: SAT AF Instrument Condition: SAT AL Instrument Condition: SAT

Table with columns: HIGH VOLTAGE (+/- 10% tolerance), AS FOUND HV, AS LEFT HV, New Batteries?, AF Mechanical Zero, AL Mechanical Zero, AF THRESHOLD, AF HV Reading, AL THRESHOLD, AL HV Reading.

RATE METER

Table with columns: SCALE, RATE CPM, AS FOUND, % ERROR, AS LEFT, % ERROR. Rows include scales from x.1 to x1000.

DIGITAL SCALER

Table with columns: AF, % ERR, AL, % ERR. Rows include values for 250, 2498, 24.97 K, 249.7 K, 200, 2000, 20 K, 200K.

Is the As Found Data Within 20% of the Set Point?

Is the As Found Data Within 20% of the Set Point?

REPRODUCIBILITY

Table with columns: Scale, Value 1, Value 2, Value 3. Rows include scales from x.1 to x1000.

Audio Response: SAT

Audio Divide: SAT

Push Buttons: SAT

Lamp: SAT

Scaler/Digital: SAT

Are the Individual Counts Within 10% of the Average?

Fast / Slow Response Function Property?

Comments

Married as a set with: Model: 43-68

Serial #: PR160795

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

09/02/04

Performed by:

Signature of Carl Hall

Reviewed by:

Signature

Date: 9-2-03

Printed Name: Carl Hall

Entered in Computer Maintenance By:

Signature

Date: 9/2/03



Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

Page 1 of 1

4/2/2003

COPY

Calibration Certificate for 43-37, Serial # PR161367, Bar Code #, Property # SER 5170

Date: 04/02/03

Date Last Cal. Expires: 05/03/03

Technician: Carl Hall

Location: 9999,

Reason For Calibration: #Error

EQUIPMENT USED DURING CALIBRATION

MODEL: 2221 SERIAL #: 172051 CAL DUE 04/02/04

MODEL: SERIAL #: CAL DUE

NIST TRACEABLE SOURCES USED

| SOURCE | ISOTOPE | ACTIVITY | ASSAY DATE |
|---------|---------|-----------|------------|
| 4071-02 | Th-230 | 35400 dpm | 2/11/2003 |
| 4072-02 | Tc-99 | 29800 dpm | 2/8/2003 |
| 4076-02 | Sr-90 | 16600 dpm | 2/11/2003 |
| 4079-02 | Pu-239 | 29300 dpm | 2/11/2003 |

AS FOUND DATA

AF Instrument Condition: SAT AL Instrument Condition: SAT Efficiency from last cal.

Setpoints from last cal.: HV (Alpha): 1350 V HV (Beta): 1800 V Threshold: 10 mV Pu: 23.64 % Tc: 24.56 %

AF Response in CPM: Alpha Beta 2nd AF Response in CPM: Alpha Beta Th: 20.61 % Sr: 31.97 %

Background: 2 1105 Pu-239: 8220 Tc-99: 8125

AF Efficiencies: Th-230 / Sr-90: 7704 / 6618 Th-230 Sr-90 Th-230 Sr-90

Is the As Found Data Within 20% of the efficiency from the last cal.?

Reproducibility: Isotope: Sr-90 6642 6601 6633 Average: 6625.3

Are the individual counts within 10% of the average?

Alpha Source: Th-230

PLATEAU DATA

Beta Source: Tc-99

Response Background (CPM): (CPM): HV (Alpha) A ch. A ch. Net Eff.

| Response | Background | Net Eff. |
|----------|------------|----------|
| N/A | | |
| | | |
| | | |
| | | |

Response Background (CPM): (CPM): HV (Beta) B ch. B ch. Net Eff.

| Response | Background | Net Eff. |
|----------|------------|----------|
| N/A | | |
| | | |
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| | | |

Alpha HV Pu-239 Th-230 CPM CPM Alpha Beta Beta HV Tc-99 Sr-90 CPM CPM

AL Efficiencies: AL Efficiencies:

Comments: Married as a set with: Model: 2221 Serial #: 172051

Does Instrument Meet Final Acceptance Criteria? Calibration Sticker Attached?

Date Instrument Is Due For Next Calibration: 04/02/03

Performed by: Carl Hall

Reviewed by: Date: 4/2/03

Entered in Computer Inventory By: Date: 4/2/03

Instrument Set 8

UVAP
DAILY FIELD SOURCE CHECK LOG - FIELD INSTRUMENT

Source Type: Tc-99/ TC4700730 Source Activity: 35800 DPM

Instrument: L2221 S/N: 157024 Voltage: 1775 Cal. Due: 6/27/04

Detector: L 43-37 S/N: 066273 Threshold: 100 Cal. Due: 6/27/04

| Date | Time | Source Check Gross CPM (A) | Bkg. cpm (B) | Net | Eff. | HV | Batt. | Spkr. | Phys. | By |
|---------|-------|-------------------------------|-----------------|--------|------|------|-------|-------|-------|----|
| | | | | Counts | | | | | | |
| 7/12/03 | 08:30 | 6,449 | 1,010 | 5339 | | 1774 | 5.8 | ok | ok | AT |
| 7/12/03 | 10:30 | 6,578 | 1,022 | 5556 | | 1775 | 5.8 | ok | ok | AT |
| | | | | | | | | | | |
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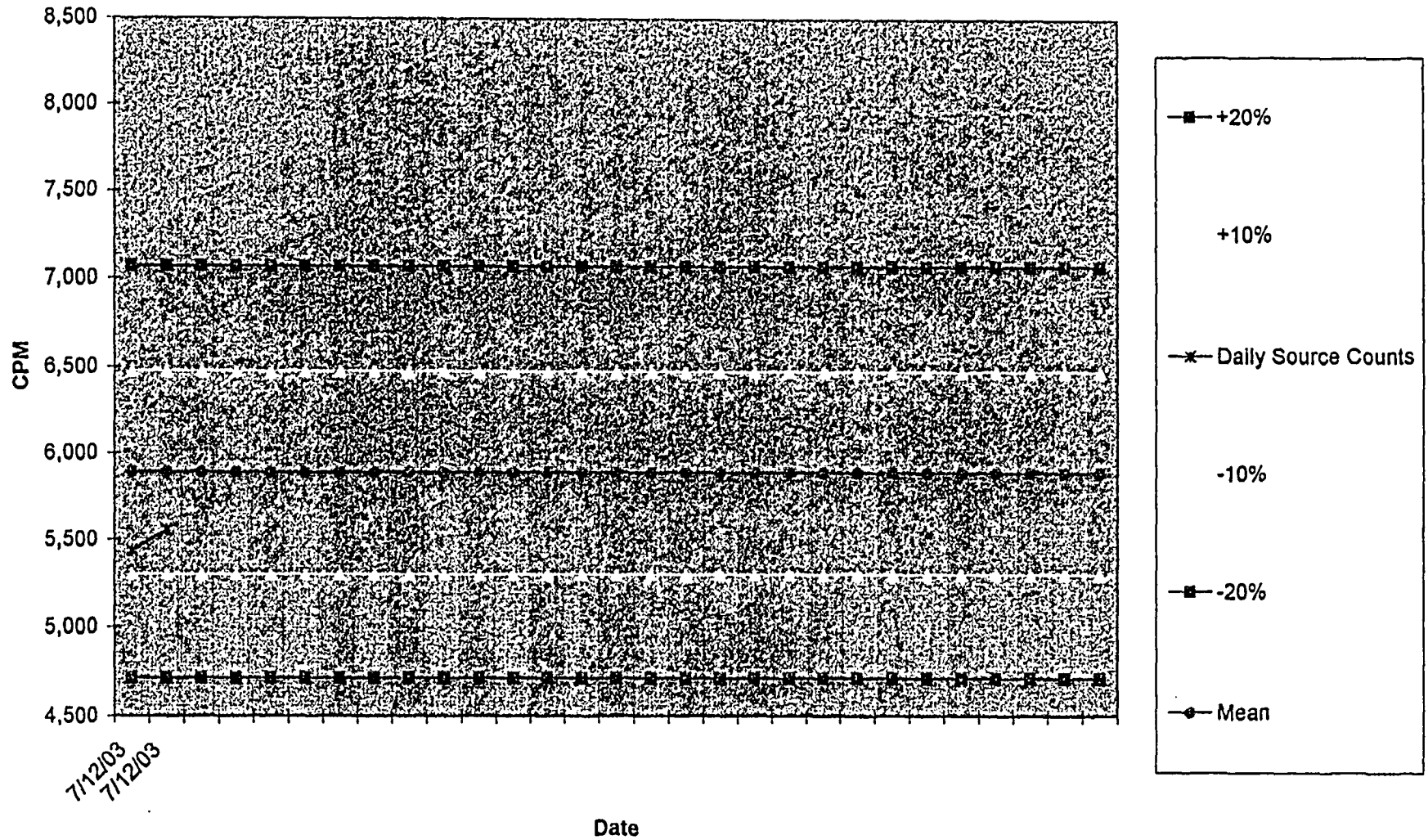
+20% 7,067
-20% 4,711

(A) - (B) = (D) (Daily Calculated Efficiency)
Activity

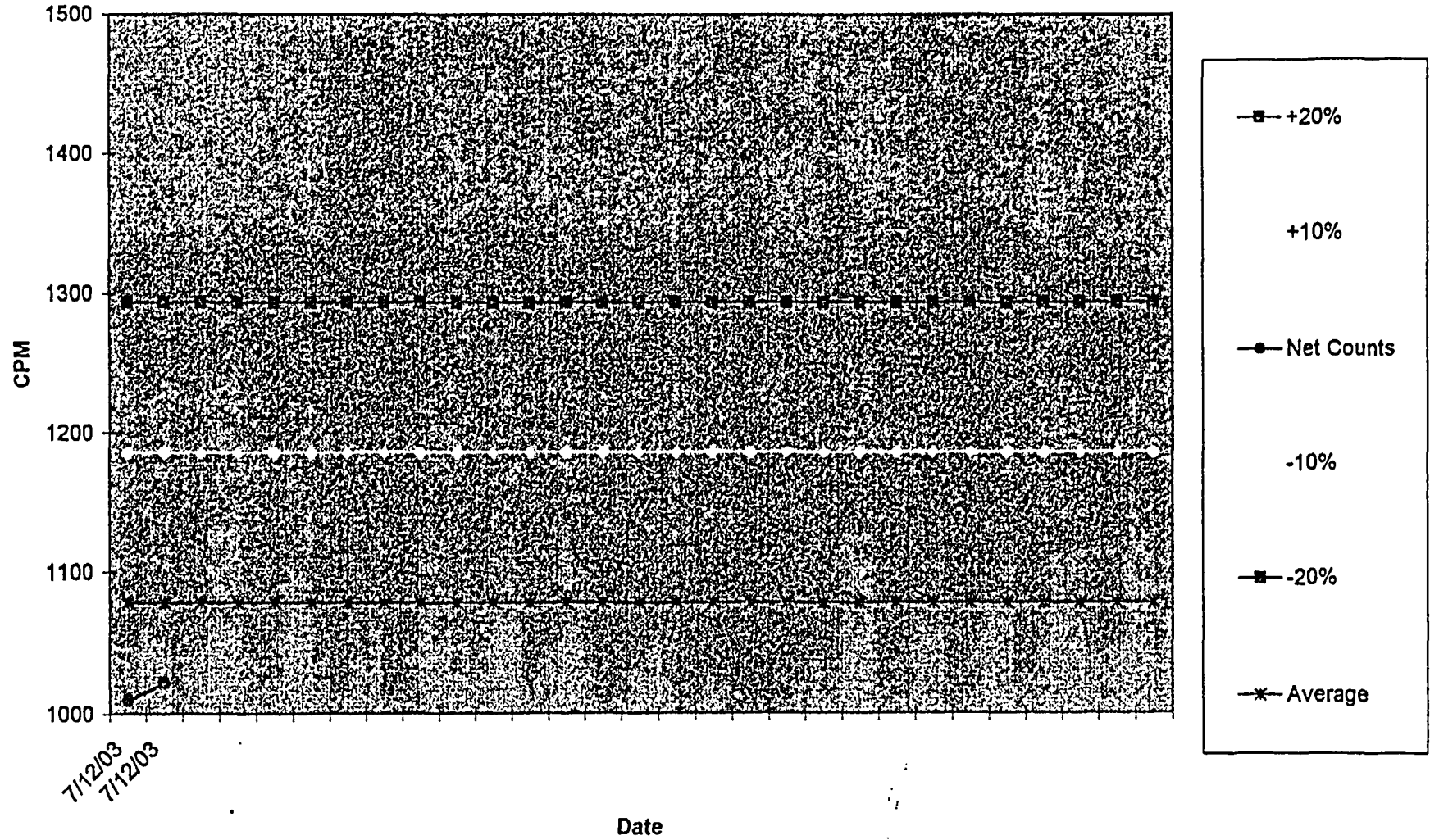
Remarks _____

Daily Source

Daily Source Range
Instrument:L-2221 # 103942 Probe: L-43-37 # 149715



Daily Background Range
Instrument: L-2221 # 103942 Probe: L-43-37 # 149715



UVAP
INITIAL SETUP / ACCEPTABLE RANGE DATA SHEET

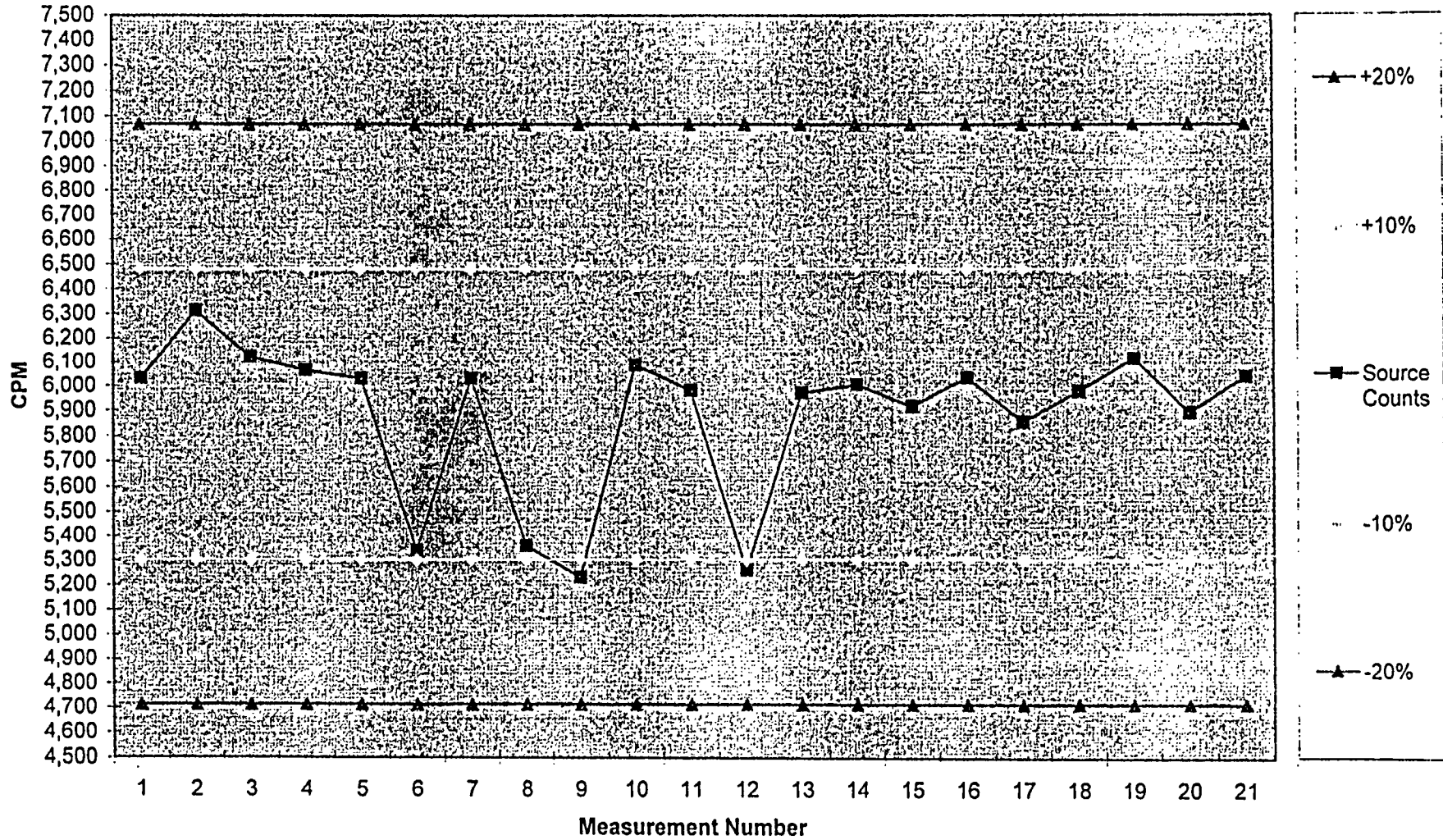
INSTRUMENT: L2221 SERIAL #: 157024 CAL DUE: 6/27/04
 PROBE: L 43-37 SERIAL #: 066273 CAL DUE: 6/27/04
 SOURCE: Tc-99 SERIAL #: C4700730 Setup Date: 7/10/03
 ACTIVITY: 35800 dpm
 BKG COUNT TIME: 1MINUTE SOURCE COUNT TIME: 1 MINUTE
 CALIBRATED OPERATING VOLTAGE: 1775 THRESHOLD VALUE: 100

| COUNT # | SOURCE CPM | BKG CPM | NET SOURCE CTS | EFFICIENCY (D) |
|----------|------------|---------|----------------|----------------|
| 1 | 7,159 | 1128 | 6,031 | N/A |
| 2 | 7,363 | 1050 | 6,313 | N/A |
| 3 | 7,231 | 1110 | 6,121 | N/A |
| 4 | 7,167 | 1103 | 6,064 | N/A |
| 5 | 7,103 | 1073 | 6,030 | N/A |
| 6 | 6,432 | 1091 | 5,341 | N/A |
| 7 | 7,083 | 1053 | 6,030 | N/A |
| 8 | 6,451 | 1091 | 5,360 | N/A |
| 9 | 6,304 | 1073 | 5,231 | N/A |
| 10 | 7,114 | 1027 | 6,087 | N/A |
| 11 | 7,061 | 1079 | 5,982 | N/A |
| 12 | 6,308 | 1047 | 5,261 | N/A |
| 13 | 7,073 | 1100 | 5,973 | N/A |
| 14 | 7,093 | 1088 | 6,005 | N/A |
| 15 | 6,981 | 1061 | 5,920 | N/A |
| 16 | 7,109 | 1074 | 6,035 | N/A |
| 17 | 6,938 | 1079 | 5,859 | N/A |
| 18 | 7,060 | 1080 | 5,980 | N/A |
| 19 | 7,133 | 1019 | 6,114 | N/A |
| 20 | 7,008 | 1112 | 5,896 | N/A |
| 21 | 7,137 | 1098 | 6,039 | N/A |
| Averages | 6,967 | 1,078 | 5,889 | N/A |

+ 10% 6,478 -10% 5,300
 + 20% 7,067 - 20% 4,711

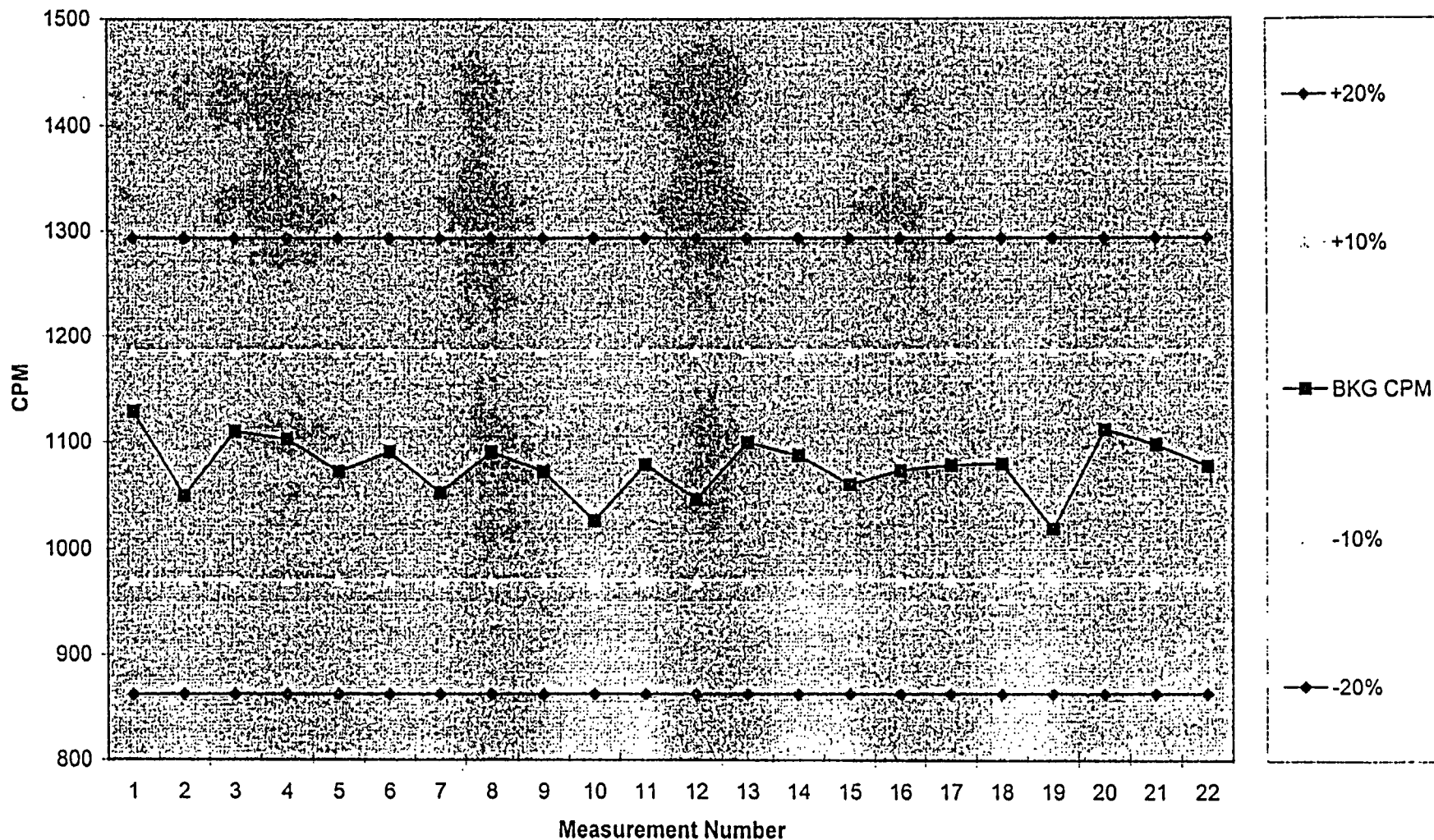
PERFORMED BY: Alice Thompson DATE: 07/10/03
 REVIEWED BY: Frank Myers DATE: 07/10/03

Initial Setup Source Range 4/07/03
Instrument:L-2221 # 157024 Probe: L-43-37 # 066273



Initial BKG

Initial Setup Background Range 4/07/03
Instrument:L-2221 # 157024 Probe: L-43-37 # 066273





Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

7/2/2003

Calibration Certificate for 2221, Serial # 157024, Bar Code #, Property # SEC-5185

Date: 06/27/03

Date Last Cal. Expires: 03/21/04

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2 SERIAL #: 132896 CAL DUE: 11/26/03

MODEL: SERIAL #: CAL DUE:

AS FOUND DATA

Geotropism: SAT AF Instrument Condition: SAT AL Instrument Condition: SAT

HIGH VOLTAGE

AS FOUND HV

AS LEFT HV

[] New Batteries?

AF Mechanical Zero: 0

(+/- 10% tolerance)

Table with 4 columns: Voltage (500V, 1000V, 1500V), AS Found HV, AS Left HV, and AF/AL Mechanical Zero and HV Readings.

RATE METER

DIGITAL SCALER

Table with 6 columns: SCALE, RATE CPM, AS FOUND, % ERROR, AS LEFT, % ERROR. Includes scales from x.1 to x1000.

Table with 4 columns: AF value, % ERR, AL value, % ERR. Includes values for 250, 2499, 24.99 K, 249.8 K, 200, 2000, 18 K, 190 K.

[x] Is the As Found Data Within 20% of the Set Point?

[x] Is the As Found Data Within 20% of the Set Point?

REPRODUCIBILITY

Table with 4 columns: Scale (x.1, x1, x10, x100, x1000), and three columns of values.

Audio Response: SAT

Audio Divide: SAT

Push Buttons: SAT

Lamp: SAT

Scaler/Digital: SAT

[x] Are the Individual Counts Within 10% of the Average?

[x] Fast / Slow Response Function Properly?

Comments Married as a set with: Model: 43-37 Calibrated as a set to a 43-37 and 43-68 # PR160687.

Serial #: PR066273

[x] Does Instrument Meet Final Acceptance Criteria?

[x] Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

06/27/04

Performed by: [Signature]

Reviewed by: [Signature] Date: 7/2/03

Printed Name: Carl Hall

Entered in Computer Maintenance By: [Signature] Date: 7/2/03



Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

7/2/2003

libration Certificate for 43-37, Serial # PR066273, Bar Code # ,Property # SEC-5173

Date: 06/27/03

Date Last Cal. Expires: 03/21/04

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 2221

SERIAL #: 157024

CAL DUE 06/27/04

MODEL:

SERIAL #:

CAL DUE

NIST TRACEABLE SOURCES USED

| SOURCE | ISOTOPE | ACTIVITY | ASSAY DATE |
|---------|---------|-----------|-----------------|
| 4071-02 | Th-230 | 35400 dpm | 17900 2/11/2003 |
| 4072-02 | Tc-99 | 29800 dpm | 18600 2/6/2003 |
| 4076-02 | Sr-90 | 16600 dpm | 11600 2/1/2003 |
| 4079-02 | Pu-239 | 29300 dpm | 14900 2/11/2003 |

AS FOUND DATA

AF Instrument Condition: SAT

AL Instrument Condition: SAT

Efficiency from last cal.

Setpoints from last cal.: HV (Alpha): 1300 V HV (Beta): 1775 V Threshold: 10 mV Pu: 21.64 % Tc: 24.02 %

AF Response in CPM: Alpha Beta 2nd AF Response in CPM: Alpha Beta Th: 22.21 % Sr: 33.44 %

Background: 6 1227 (after repair)

Pu-239: 6411 Tc-99: 8391

AF Efficiencies: 21.86% 24.04% Th-230 Sr-90

Th-230 / Sr-90: 7926 / 6792 22.37% / 33.52%

Is the As Found Data Within 20% of the efficiency from the last cal.?

Reproducibility: Isotope: Sr-90 6743 6801 6768 Average: 6770.7

Are the individual counts within 10% of the average?

If the As Found data (even after repair) is within 10% of the last calibration, then the technician may N/A Plateau Data and go directly to Comments. Geometry = 1/8" from source unless otherwise specified.

Alpha Source: Th-230

PLATEAU DATA

Beta Source: Tc-99

| HV (Alpha) | Response (CPM): | | Background (CPM): | Net Eff. |
|------------|-----------------|-------|-------------------|----------|
| | A ch. | A ch. | | |
| N/A | | | | |

| HV (Beta) | Response (CPM): | | Background (CPM): | Net Eff. |
|-----------|-----------------|-------|-------------------|----------|
| | B ch. | B ch. | | |
| N/A | | | | |

BACKGROUND

| Alpha HV | Pu-239 | Th-230 | Alpha | Beta | Beta HV | Tc-99 | Sr-90 |
|----------|--------|--------|-------|------|---------|-------|-------|
| | | | CPM | CPM | | CPM | CPM |

AL Efficiencies: [blacked out]

AL Efficiencies: [blacked out]

Comments:

Married as a set with: Model: 2221

Serial #: 157024

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Callbration: 06/27/04

Performed by: [Signature]

Reviewed by: [Signature]

Date: 7/2/03

Printed Name: Carl Hall

Entered in Computer Inventory By: [Signature]

Date: 7/2/03

Instrument Set 9

UVAP DAILY FIELD SOURCE CHECK LOG - FIELD INSTRUMENT

Source Type: Tc99/lc4700730 Source Activity: 35800 dpm

Instrument: L2221 S/N: 172051 Voltage: 1725 Cal. Due: 4/2/04

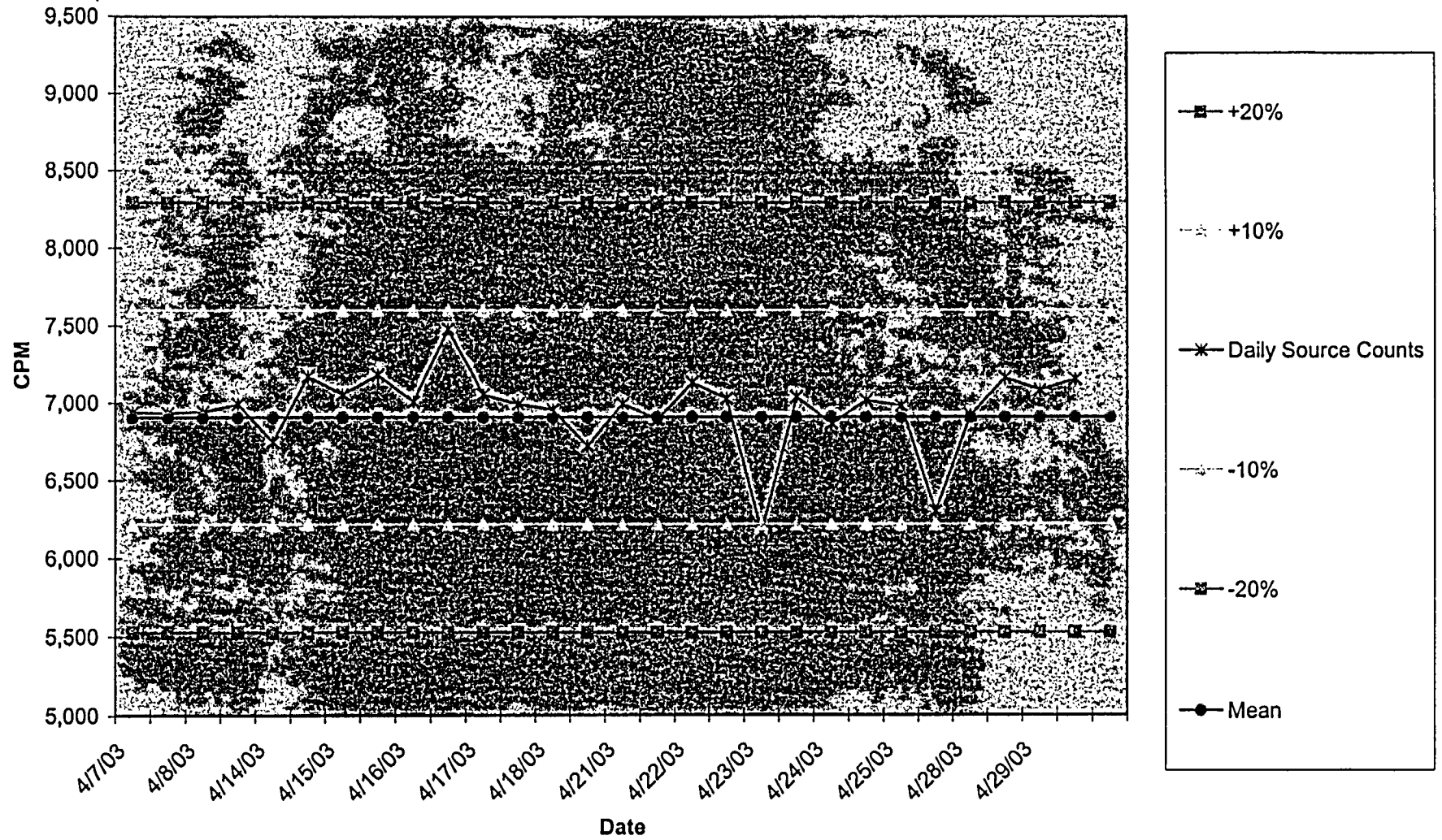
Detector: L43-68 S/N: PR116718 Threshold: 100 Cal. Due: 4/2/04

| Date | Time | Source Check Gross CPM (A) | Bkg. cpm (B) | Net | Eff. 2 Pi | HV | Batt. | Spkr. | Phys. | By |
|---------|-------|-------------------------------|-----------------|--------|-----------|-------|-------|-------|-------|----|
| | | | | Counts | | | | | | |
| 4/7/03 | 11:35 | 7,194 | 255 | 6939 | 0.107 | 1725 | 537 | ok | ok | BM |
| 4/7/03 | 17:20 | 7,220 | 257 | 6933 | 0.107 | 1725 | 5.7 | ok | ok | BM |
| 4/8/03 | 8:10 | 7,230 | 287 | 6943 | 0.107 | 1725 | 5.6 | ok | ok | JS |
| 4/10/03 | 8:10 | 7,234 | 242 | 6992 | 0.107 | 1724 | 5.6 | ok | ok | JS |
| 4/14/03 | 9:20 | 6,953 | 205 | 6748 | 0.107 | 1725 | 5.6 | ok | ok | JS |
| 4/14/03 | 17:20 | 7,443 | 273 | 7170 | 0.107 | 1725 | 5.5 | ok | ok | JS |
| 4/15/03 | 8:30 | 7,315 | 260 | 7055 | 0.107 | 1725 | 5.6 | ok | ok | JS |
| 4/15/03 | 17:15 | 7,476 | 290 | 7180 | 0.107 | 1724 | 5.5 | ok | ok | JS |
| 4/16/03 | 8:00 | 7,305 | 298 | 7007 | 0.107 | 1725 | 5.5 | ok | ok | BM |
| 4/16/03 | 18:05 | 7,779 | 303 | 7476 | 0.107 | 1726 | 5.4 | ok | ok | JS |
| 4/17/03 | 8:00 | 7,331 | 279 | 7052 | 0.107 | 1726 | 5.5 | ok | ok | JS |
| 4/17/03 | 16:50 | 7,264 | 273 | 6991 | 0.107 | 1725 | 5.5 | ok | ok | JS |
| 4/18/03 | 11:20 | 7,187 | 237 | 6956 | 0.107 | 1725 | 5.4 | ok | ok | JS |
| 4/18/03 | 13:30 | 6,974 | 252 | 6722 | 0.107 | 1726 | 5.5 | ok | ok | JS |
| 4/21/03 | 8:00 | 7,263 | 270 | 6993 | 0.107 | 1725 | 5.4 | ok | ok | BL |
| 4/21/03 | 17:05 | 7,110 | 217 | 6893 | 0.107 | 1725 | 5.4 | ok | ok | JS |
| 4/22/03 | 8:50 | 7,394 | 264 | 7130 | 0.107 | 1724 | 5.5 | ok | ok | JS |
| 4/23/03 | 17:00 | 7,322 | 295 | 7027 | 0.107 | 1725 | 5.4 | ok | ok | JS |
| 4/23/03 | 7:55 | 6,423 | 258 | 6165 | 0.107 | 1725 | 5.4 | ok | ok | BL |
| 4/23/03 | 16:45 | 7,291 | 253 | 7038 | 0.107 | 1724 | 5.4 | ok | ok | JS |
| 4/24/03 | 7:50 | 7,128 | 263 | 6865 | 0.107 | 17216 | 5.4 | ok | ok | JS |
| 4/24/03 | 17:20 | 7,281 | 265 | 7016 | 0.107 | 1725 | 5.4 | ok | ok | JS |
| 4/25/03 | 8:15 | 7,259 | 278 | 6981 | 0.107 | 1725 | 5.4 | ok | ok | JS |
| 4/25/03 | 14:44 | 6,570 | 270 | 6300 | 0.107 | 1724 | 5.3 | ok | ok | BL |
| 4/28/03 | 7:50 | 7,205 | 280 | 6920 | 0.107 | 1725 | 5.3 | ok | ok | JS |
| 4/28/03 | 16:50 | 7,433 | 271 | 7162 | 0.107 | 1725 | 5.34 | ok | ok | JS |
| 4/29/03 | 8:15 | 7,358 | 276 | 7082 | 0.107 | 1725 | 5.3 | ok | ok | JS |
| 4/29/03 | 17:05 | 7,395 | 244 | 7151 | 0.107 | 1724 | 5.3 | ok | ok | JS |

| | | | | | | | | | | |
|---------|-------|---|--|--|--|--|--|--|--|--|
| Remarks | | | | | | | | | | |
| +20% | 8,290 | (A) - (B) = (D) (Daily Calculated Efficiency) Activity | | | | | | | | |
| -20% | 5,527 | | | | | | | | | |

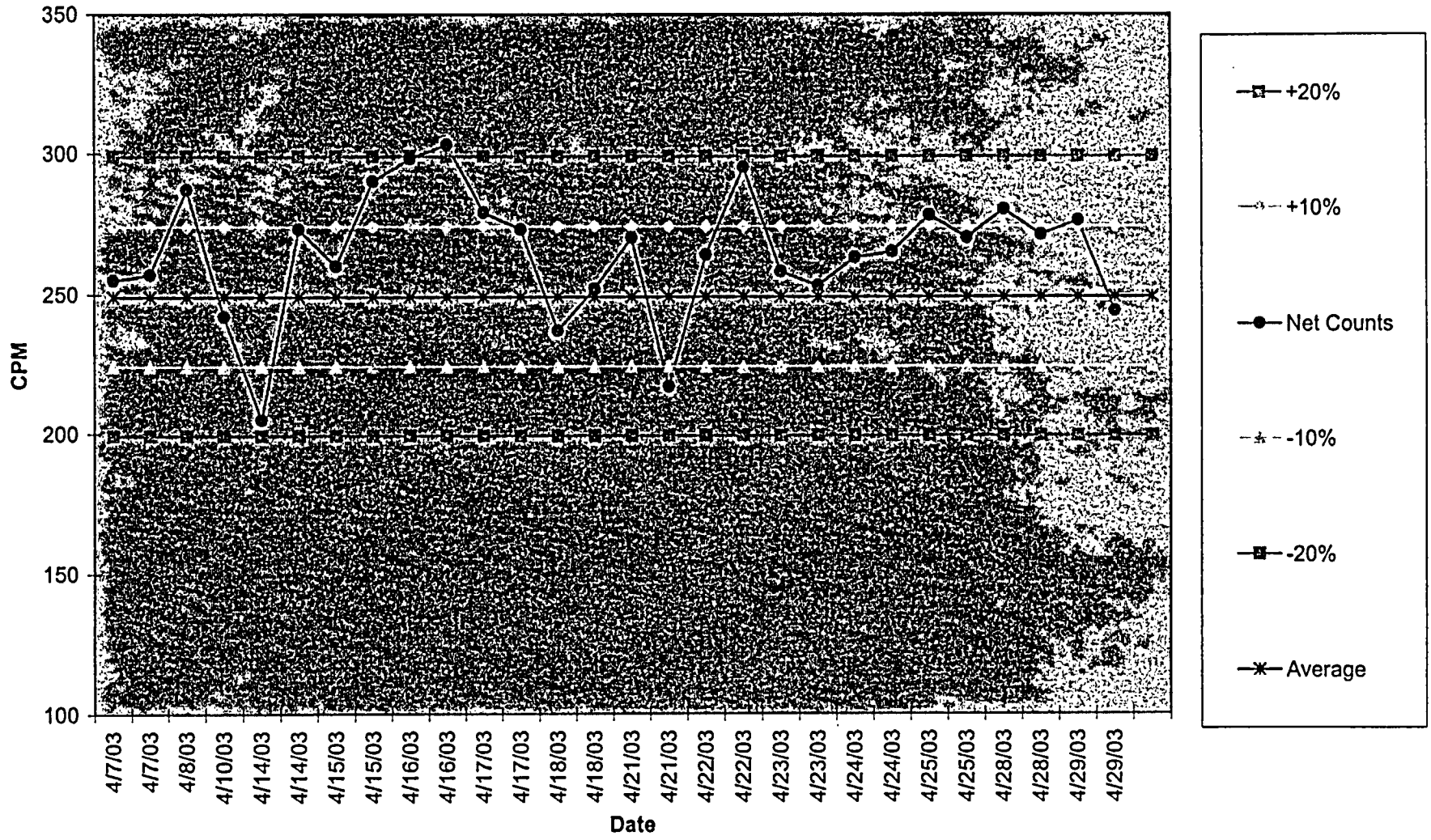
Daily Source

Daily Source Range
Instrument:L-2221 # 172051 Probe: L-43-68 # 116718



Daily Background Range

Instrument: L-2221 # 172051 Probe: L-43-68# 116718



UVAP
INITIAL SETUP / ACCEPTABLE RANGE DATA SHEET

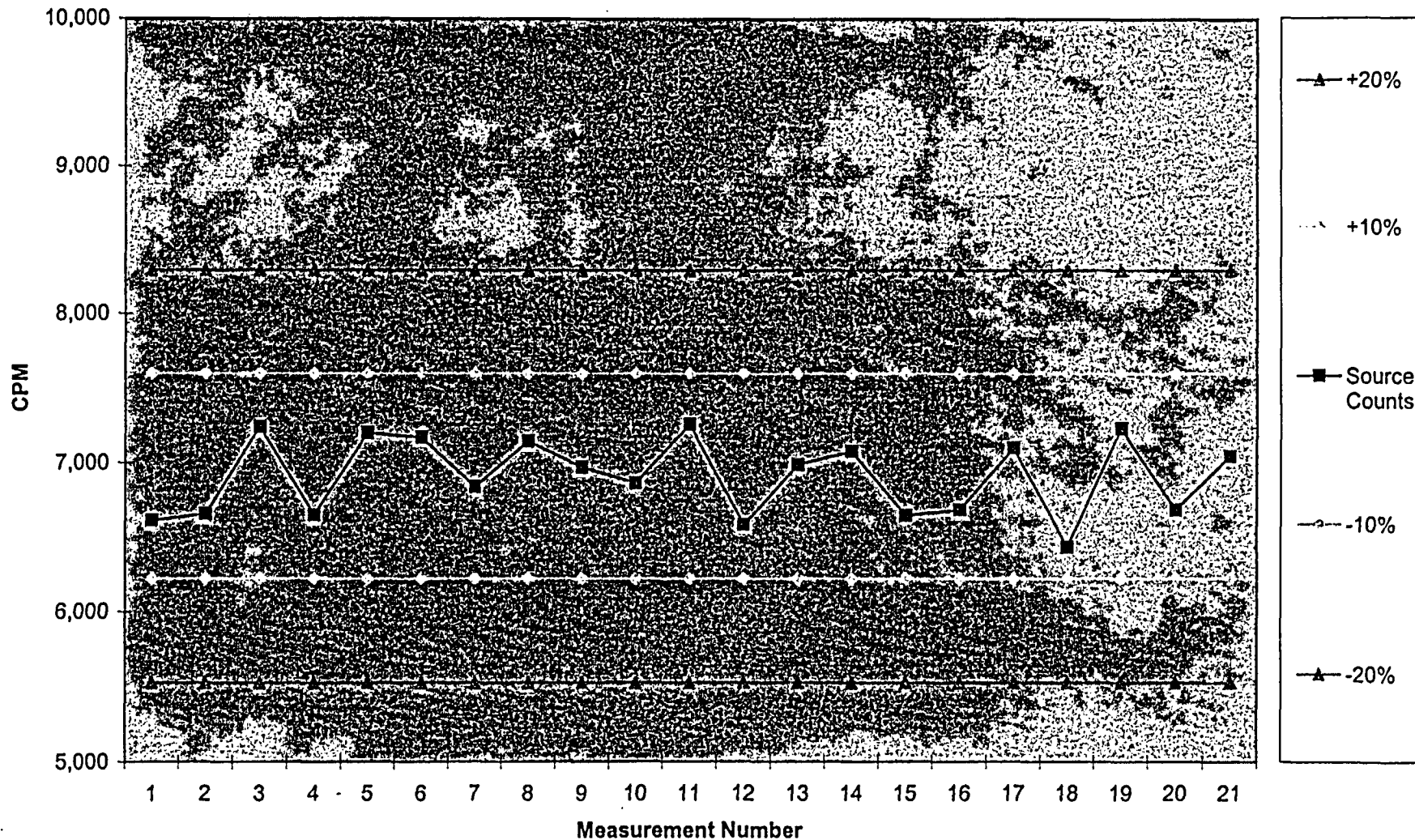
INSTRUMENT: L2221 SERIAL #: 172051 CAL DUE: 04/02/2004
 PROBE: L43-68 SERIAL #: PR116718 CAL DUE: 04/02/2004
 SOURCE: Tc99 SERIAL #: tc4700730 Setup Date: 04/24/2002
 ACTIVITY: 38500 DPM
 BKG COUNT TIME: 1 MINUTE SOURCE COUNT TIME: 1 MINUTE
 CALIBRATED OPERATING VOLTAGE: 1725 THRESHOLD VALUE: 100

| COUNT # | SOURCE CPM | BKG CPM | NET SOURCE CTS | EFFICIENCY (D) |
|----------|------------|---------|----------------|----------------|
| 1 | 6,961 | 251 | 6,610 | N/A |
| 2 | 6,811 | 257 | 6,654 | N/A |
| 3 | 7,495 | 254 | 7,241 | N/A |
| 4 | 6,893 | 246 | 6,647 | N/A |
| 5 | 7,445 | 245 | 7,200 | N/A |
| 6 | 7,410 | 238 | 7,172 | N/A |
| 7 | 7,087 | 249 | 6,838 | N/A |
| 8 | 7,392 | 246 | 7,146 | N/A |
| 9 | 7,225 | 255 | 6,970 | N/A |
| 10 | 7,110 | 246 | 6,864 | N/A |
| 11 | 7,529 | 270 | 7,259 | N/A |
| 12 | 6,826 | 243 | 6,583 | N/A |
| 13 | 7,243 | 255 | 6,988 | N/A |
| 14 | 7,303 | 224 | 7,079 | N/A |
| 15 | 6,922 | 276 | 6,646 | N/A |
| 16 | 6,921 | 237 | 6,684 | N/A |
| 17 | 7,348 | 248 | 7,100 | N/A |
| 18 | 6,684 | 252 | 6,432 | N/A |
| 19 | 7,490 | 257 | 7,233 | N/A |
| 20 | 6,915 | 232 | 6,683 | N/A |
| 21 | 7,297 | 250 | 7,047 | N/A |
| Averages | 7,157 | 249 | 6,908 | N/A |

+ 10% 7,599 -10% 6,218
 + 20% 8,290 - 20% 5,527

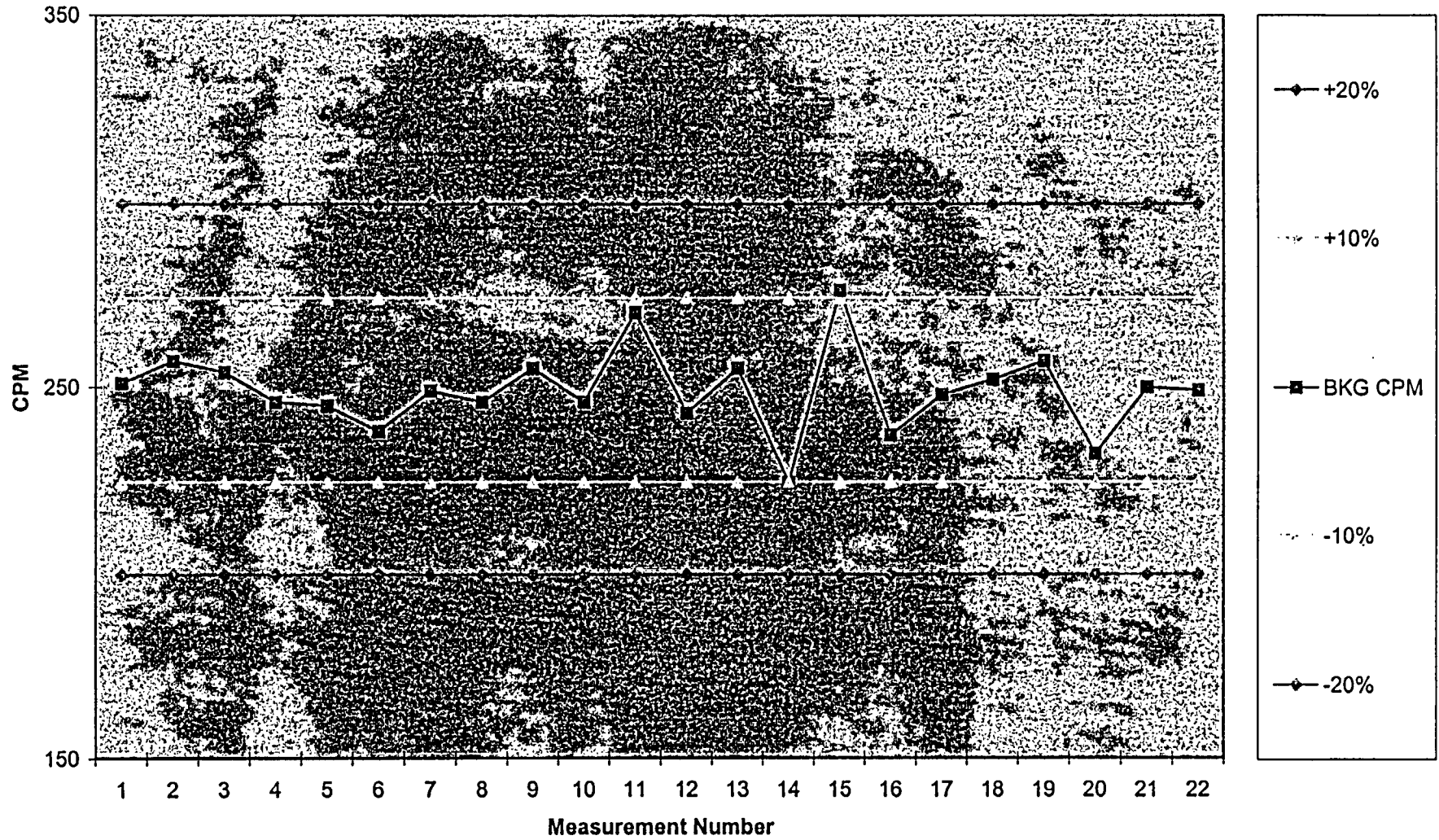
PERFORMED BY: Alice Thompson DATE: 04/24/03
 REVIEWED BY: Frank Myers DATE: 04/24/03

Initial Setup Source Range 04/24/03
Instrument: L-2221 # 172051 Probe: L-43-68# 116718



Initial BKG

Initial Setup Background Range 04/24/03
Instrument:L-2221 # 172051 Probe: L-43-68 # 116718





Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

9/2/2003

Calibration Certificate for 2221, Serial # 172051, Bar Code # , Property # SEC-5219

Date: 09/02/03

Date Last Cal. Expires: 04/02/04

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2 SERIAL #: 132896 CAL DUE: 11/26/03

MODEL: SERIAL #: CAL DUE:

AS FOUND DATA

Geotropism: SAT AF Instrument Condition: SAT AL Instrument Condition: SAT

HIGH VOLTAGE

AS FOUND HV

AS LEFT HV

New Batteries?

AF Mechanical Zero: 0

(+/- 10% tolerance)

500 V:

508

AF

Threshold ratio: 100=10mV

AL Mechanical Zero: 0

1000 V:

1008

AF

AF THRESHOLD: 10.0 mV

AF HV Reading: 1727 V

1500 V:

1506

AF

AL THRESHOLD: 10.0 mV

AL HV Reading: 1250 V

RATE METER

| SCALE | RATE CPM | AS FOUND | % ERROR | AS LEFT | % ERROR |
|--------------------------|----------|----------|---------|---------|---------|
| x.1 or x1 | 100 | 100 | 0.00% | AF | 0.00% |
| | 250 | 250 | 0.00% | AF | 0.00% |
| | 400 | 400 | 0.00% | AF | 0.00% |
| x1 or x10 | 1000 | 1000 | 0.00% | AF | 0.00% |
| | 2500 | 2500 | 0.00% | AF | 0.00% |
| | 4000 | 4000 | 0.00% | AF | 0.00% |
| r (x1000) | 10K | 10 | 0.00% | AF | 0.00% |
| | 25K | 25 | 0.00% | AF | 0.00% |
| | 40K | 40 | 0.00% | AF | 0.00% |
| x100 or x1000 (x1000) | 100K | 100 | 0.00% | AF | 0.00% |
| | 250K | 250 | 0.00% | AF | 0.00% |
| | 400K | 400 | 0.00% | AF | 0.00% |

DIGITAL SCALER

| | | | |
|------------------|--------------|---------------|--------------|
| AF 250: 250 | % ERR: 0.00% | AL 250: AF | % ERR: 0.00% |
| AF 2500: 2498 | % ERR: 0.08% | AL 2500: AF | % ERR: 0.08% |
| AF 25K: 24.97 K | % ERR: 0.12% | AL 25K: AF K | % ERR: 0.12% |
| AF 250K: 249.7 K | % ERR: 0.12% | AL 250K: AF K | % ERR: 0.12% |

Is the As Found Data Within 20% of the Set Point?

LOG SCALE

| | | | |
|----------------|--------------|---------------|--------------|
| AF 200: 200 | % ERR: 0.00% | AL 200: AF | % ERR: 0.00% |
| AF 2000: 2000 | % ERR: 0.00% | AL 2000: AF | % ERR: 0.00% |
| AF 20K: 20 K | % ERR: 0.00% | AL 20K: AF K | % ERR: 0.00% |
| AF 200K: 200 K | % ERR: 0.00% | AL 200K: AF K | % ERR: 0.00% |

Is the As Found Data Within 20% of the Set Point?

Is the As Found Data Within 20% of the Set Point?

REPRODUCIBILITY

| | | | |
|----------------------|-------|-------|-------|
| x.1 or x1 Scale: | 250 | 250 | 250 |
| x1 or x10 Scale: | 2500 | 2500 | 2500 |
| x10 or x100 Scale: | 25 K | 25 K | 25 K |
| x100 or x1000 Scale: | 250 K | 250 K | 250 K |

Audio Response: SAT

Audio Divide: SAT

Push Buttons: SAT

Lamp: SAT

Scaler/Digital: SAT

Are the Individual Counts Within 10% of the Average?

Fast / Slow Response Function Properly?

Comments

Married as a set with: Model: 43-68

Serial #: PR160795

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

09/02/04

Performed by:

Carl Hall

Reviewed by:

[Signature]

Date: 9-2-03

Printed Name: Carl Hall

Entered in Computer Maintenance By:

[Signature]

Date: 9/2/03



Safety and Ecology Corporation
 2800 Solway Road
 Knoxville, TN 37931
Calibration Certificate

COPY Page 1 of 1
 4/2/2003

Calibration Certificate for 43-68, Serial # PR116718, Bar Code # , Property # SEC-5221

Date: 04/02/03 Date Last Cal. Expires: 04/08/03 Technician: Carl Hall
 Location: 9999, Reason For Calibration: Due and Repair

EQUIPMENT USED DURING CALIBRATION MODEL: 2221 SERIAL #: 172051 CAL DUE 04/02/04

| <u>NIST TRACEABLE SOURCES USED</u> | SOURCE | ISOTOPE | ACTIVITY | ASSAY DATE |
|------------------------------------|---------|---------|-----------|------------|
| | 4071-02 | Th-230 | 35400 dpm | 2/11/2003 |
| | 4072-02 | Tc-99 | 29800 dpm | 2/6/2003 |
| | 4076-02 | Sr-90 | 16600 dpm | 2/1/2003 |
| | 4079-02 | Pu-239 | 29300 dpm | 2/11/2003 |

AS FOUND DATA AF Instrument Condition: SAT AL Instrument Condition: SAT Efficiency from last cal.

Setpoints from last cal: HV (Alpha): 1250 V HV (Beta): 1725 V Threshold: 10 mV Pu: 27.37 % Tc: 26.66 %

AF Response in CPM: Alpha Beta 2nd AF Response in CPM: Alpha Beta Th: 30.54 % Sr: 34.89 %
 Background: 0 0 (after repair) 0 1725

Pu-239: 0 6693

Tc-99: 0 7989

AF Efficiencies: ~~0.000~~ ~~0.000~~ Th-230 Sr-90 ~~0.218~~ ~~0.218~~ Th-230 Sr-90

Th-230 / Sr-90: 0 / 0 ~~0.000~~ ~~0.000~~ 8419 / 6610 ~~0.218~~ ~~0.218~~

Is the As Found Data Within 20% of the efficiency from the last cal?

Reproducibility: Isotope: Sr-90 6584 6627 6648 Average: 6619.7

Are the individual counts within 10% of the average?

| Alpha Source: Th-230 | | | | PLATEAU DATA | | | | Beta Source: Tc-99 | | | |
|----------------------|-----------------|-------|----------|---------------------|------|------|-------|--------------------|------|-------|-------|
| HV (Alpha) | Response (CPM): | | Net Eff. | Alpha | Beta | Beta | Tc-99 | Alpha | Beta | Tc-99 | Sr-90 |
| | A ch. | B ch. | | | | | | | | | |
| N/A | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

BACKGROUND

AL Efficiencies: ~~0.000~~ ~~0.000~~ AL Efficiencies: ~~0.000~~ ~~0.000~~

Comments: Married as a set with: Model: 2221 Serial #: 172051
 Replaced damaged mylar. Calibrated to new sources.

Does Instrument Meet Final Acceptance Criteria? Calibration Sticker Attached?

Date Instrument is Due For Next Calibration: 04/02/04

Performed by: Carl Hall
 Printed Name: Carl Hall

Reviewed by: [Signature] Date: 4/2/03

Entered in Computer Inventory By: [Signature] Date: 4/2/03

Instrument Set 10

UVAP

DAILY FIELD SOURCE CHECK LOG - FIELD INSTRUMENT

Source Type: TC99/ Source Activity: 35800 dpm

Instrument: L2221 S/N: 103942 Voltage: 1750 Cal. Due: 3/27/04

Detector: L 43-68 S/N: 160790 Threshold: 100 Cal. Due: 3/27/04

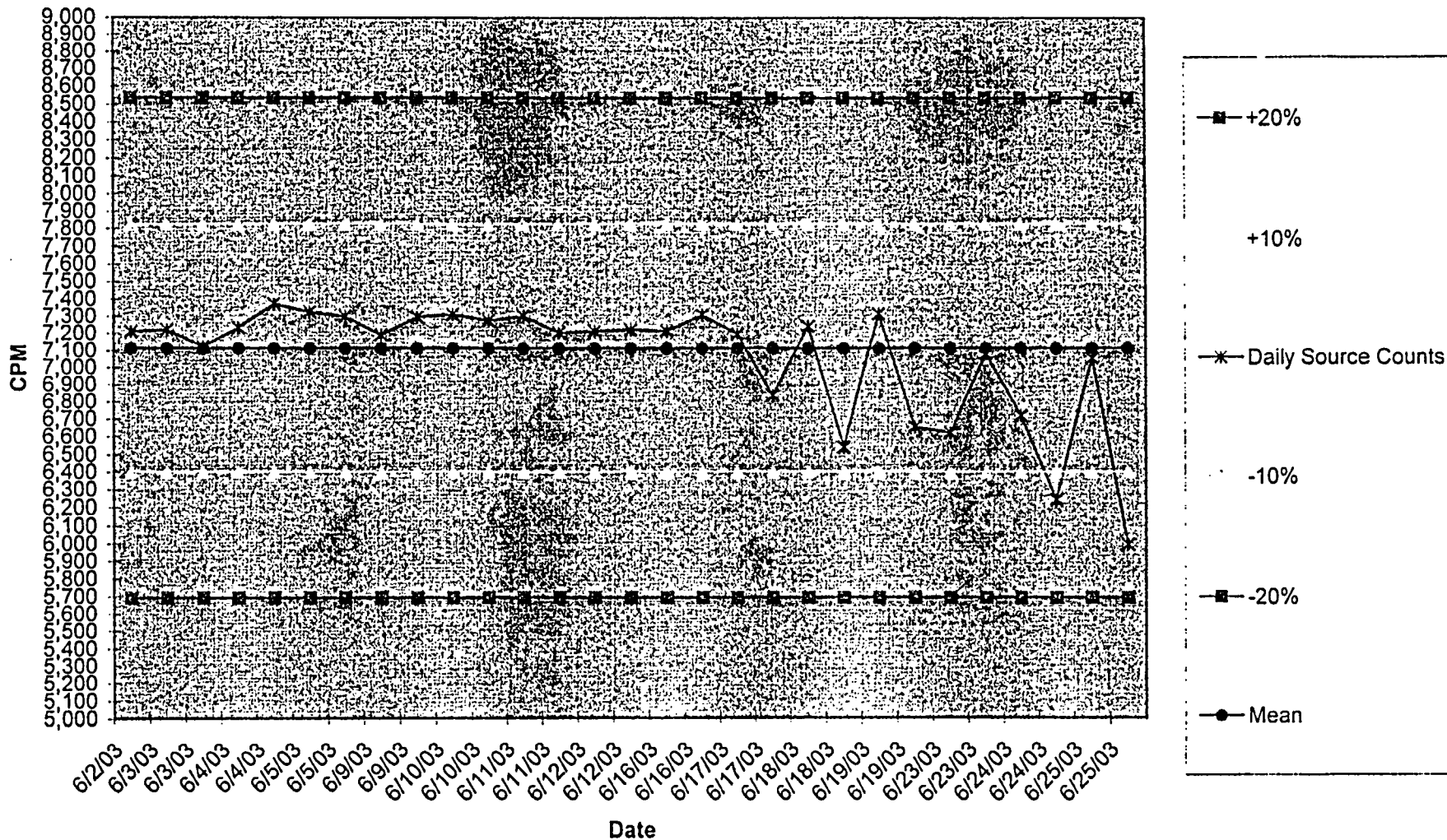
| Date | Time | Source Check Gross CPM (A) | Bkg. cpm (B) | Net | Eff. | HV | Batt. | Spkr. | Phys. | By |
|---------|-------|-------------------------------|-----------------|--------|-------|------|-------|-------|-------|----|
| | | | | Counts | | | | | | |
| 6/2/03 | 17:15 | 7,568 | 357 | 7211 | 0.109 | 1749 | 5.9 | ok | ok | JS |
| 6/3/03 | 7:50 | 7,539 | 318 | 7221 | 0.109 | 1750 | 5.9 | ok | ok | JS |
| 6/3/03 | 17:10 | 7,491 | 369 | 7122 | 0.109 | 1750 | 5.8 | ok | ok | JS |
| 6/4/03 | 7:50 | 7,565 | 331 | 7234 | 0.109 | 1750 | 5.8 | ok | ok | JS |
| 6/4/03 | 17:15 | 7,678 | 305 | 7373 | 0.109 | 1750 | 5.4 | ok | ok | JS |
| 6/5/03 | 8:00 | 7,646 | 321 | 7325 | 0.109 | 1750 | 5.4 | ok | ok | JS |
| 6/5/03 | 17:10 | 7,672 | 374 | 7298 | 0.109 | 1749 | 5.4 | ok | ok | BM |
| 6/9/03 | 7:50 | 7,575 | 385 | 7190 | 0.109 | 1750 | 5.6 | ok | ok | JS |
| 6/9/03 | 17:05 | 7,634 | 339 | 7295 | 0.109 | 1750 | 5.5 | ok | ok | JS |
| 6/10/03 | 7:50 | 7,632 | 321 | 7311 | 0.109 | 1750 | 5.6 | ok | ok | JS |
| 6/10/03 | 17:15 | 7,618 | 344 | 7274 | 0.109 | 1750 | 5.4 | ok | ok | JS |
| 6/11/03 | 7:50 | 7,638 | 338 | 7300 | 0.109 | 1750 | 5.5 | ok | ok | JS |
| 6/11/03 | 17:05 | 7,542 | 339 | 7203 | 0.109 | 1750 | 5.4 | ok | ok | JS |
| 6/12/03 | 7:40 | 7,550 | 338 | 7212 | 0.109 | 1749 | 5.5 | ok | ok | BL |
| 6/12/03 | 17:20 | 7,578 | 359 | 7221 | 0.109 | 1747 | 5.3 | ok | ok | JS |
| 6/16/03 | 7:50 | 7,544 | 330 | 7214 | 0.109 | 1749 | 5.5 | ok | ok | JS |
| 6/16/03 | 17:20 | 7,615 | 307 | 7308 | 0.109 | 1750 | 5.5 | ok | ok | JS |
| 7/03 | 7:50 | 7,511 | 315 | 7196 | 0.109 | 1750 | 5.5 | ok | ok | JS |
| 7/03 | 17:18 | 7,137 | 301 | 6836 | 0.109 | 1749 | 5.4 | ok | ok | BL |
| 6/18/03 | 10:00 | 7,566 | 326 | 7240 | 0.109 | 1749 | 5.4 | ok | ok | JS |
| 6/18/03 | 14:30 | 6,874 | 334 | 6540 | 0.109 | 1749 | 5.3 | ok | ok | BL |
| 6/19/03 | 7:30 | 7,627 | 314 | 7313 | 0.109 | 1748 | 5.4 | ok | ok | BL |
| 6/19/03 | 17:15 | 6,992 | 337 | 6655 | 0.109 | 1749 | 5.3 | ok | ok | BL |
| 6/23/03 | 7:43 | 6,921 | 299 | 6622 | 0.109 | 1748 | 5.4 | ok | ok | BL |
| 6/23/03 | 17:11 | 7,379 | 299 | 7080 | 0.109 | 1750 | 5.3 | ok | ok | BL |
| 6/24/03 | 8:15 | 6,447 | 272 | 6719 | 0.109 | 1750 | 5.4 | ok | ok | BL |
| 6/24/03 | 17:00 | 6,564 | 323 | 6241 | 0.109 | 1750 | 5.3 | ok | ok | BL |
| 6/25/03 | 7:45 | 7,348 | 295 | 7053 | 0.109 | 1750 | 5.3 | ok | ok | BL |
| 6/25/03 | 17:12 | 6,381 | 387 | 5994 | 0.109 | 1751 | 5.3 | ok | ok | BL |

Remarks _____

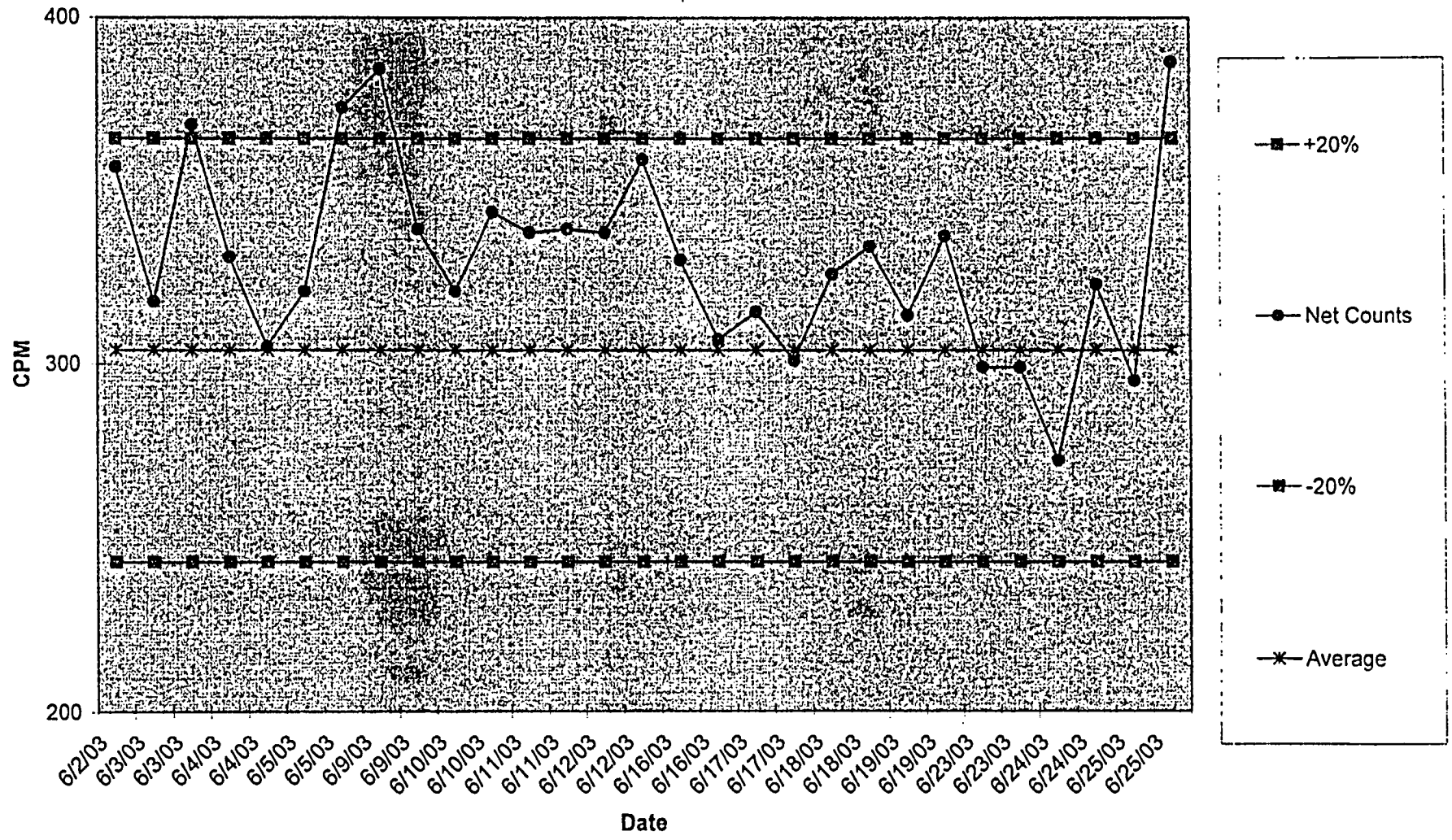
+20% 8,536
-20% 5,690

Daily Source Range

Instrument:L-2221 # 103942 Probe: L-43-68# 160790



Daily Background Range
Instrument:L-2221 #103942 Probe: L-43-68 # 160790



UVAP

DAILY FIELD SOURCE CHECK LOG - FIELD INSTRUMENT

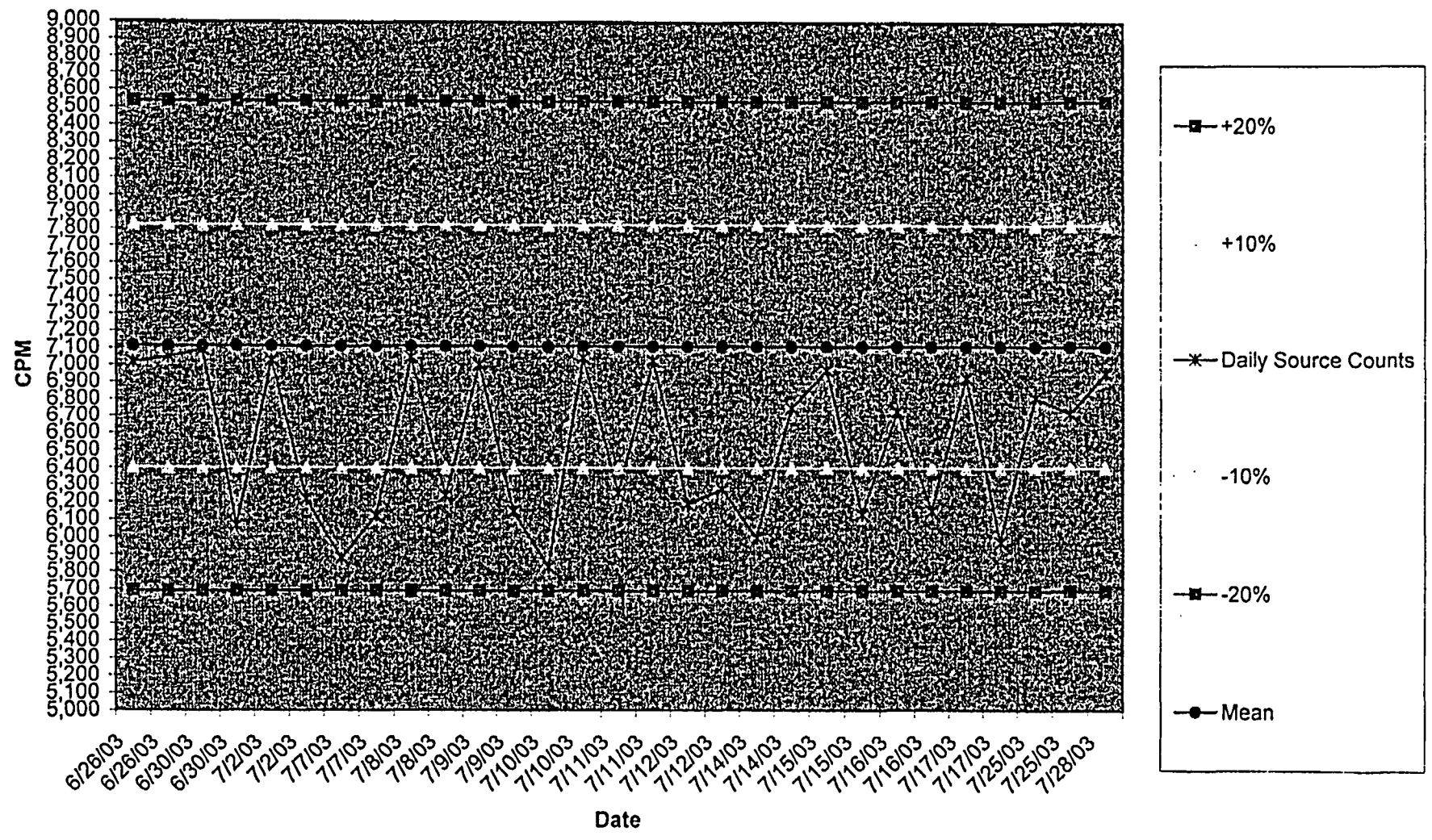
Source Type: TC99/ Source Activity: 35800 dpm

Instrument: L2221 S/N: 103942 Voltage: 1750 Cal. Due: 3/27/04

Detector: L 43-68 S/N: 160790 Threshold: 100 Cal. Due: 3/27/04

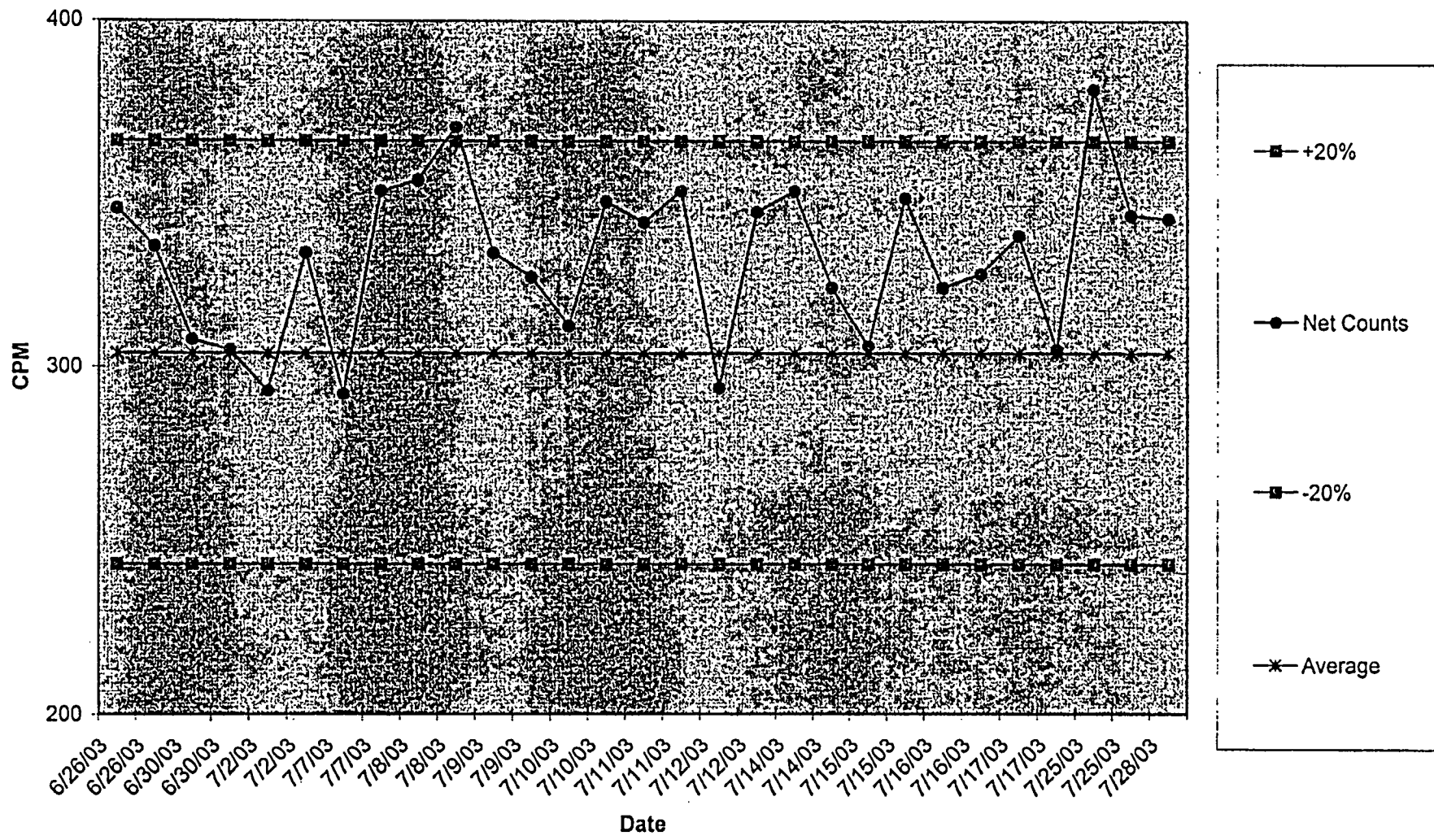
| Date | Time | Source Check Gross CPM (A) | Bkg. cpm (B) | Net | Eff. | HV | Batt. | Spkr. | Phys. | By |
|---------------|-------|-------------------------------|-----------------|--------|-------|------|-------|-------|-------|----|
| | | | | Counts | | | | | | |
| 6/26/03 | 9:30 | 7,363 | 346 | 7017 | 0.109 | 1751 | 5.3 | ok | ok | BL |
| 6/26/03 | 17:15 | 7,385 | 335 | 7050 | 0.109 | 1750 | 5.2 | ok | ok | BL |
| 6/30/03 | 7:54 | 7,401 | 308 | 7092 | 0.109 | 1750 | 5.3 | ok | ok | BL |
| 6/30/03 | 17:20 | 6,371 | 305 | 6066 | 0.109 | 1751 | 5.3 | ok | ok | BL |
| 7/2/03 | 7:35 | 7,321 | 293 | 7028 | 0.109 | 1751 | 5.2 | ok | ok | BL |
| 7/2/03 | 17:22 | 6,551 | 333 | 6218 | 0.109 | 1751 | 5.2 | ok | ok | BL |
| 7/7/03 | 8:01 | 6,170 | 292 | 5878 | 0.109 | 1750 | 5.3 | ok | ok | BL |
| 7/7/03 | 16:30 | 6,474 | 351 | 6123 | 0.109 | 1751 | 5.2 | ok | ok | BL |
| 7/8/03 | 7:30 | 7,401 | 354 | 7047 | 0.109 | 1750 | 5.2 | ok | ok | BL |
| 7/8/03 | 17:28 | 6,605 | 369 | 6236 | 0.109 | 1750 | 5.1 | ok | ok | BL |
| 7/9/03 | 7:40 | 7,337 | 333 | 7004 | 0.109 | 1750 | 5.1 | ok | ok | BL |
| 7/9/03 | 16:50 | 6,475 | 326 | 6149 | 0.109 | 1750 | 5.1 | ok | ok | BL |
| 7/10/03 | 15:40 | 6,140 | 312 | 5828 | 0.109 | 1750 | 5.1 | ok | ok | BL |
| 7/10/03 | 16:45 | 7,393 | 348 | 7045 | 0.109 | 1749 | 5.1 | ok | ok | BL |
| 7/11/03 | 7:30 | 6,595 | 342 | 6253 | 0.109 | 1750 | 5.2 | ok | ok | BL |
| 7/11/03 | 17:00 | 7,379 | 351 | 7028 | 0.109 | 1750 | 5.1 | ok | ok | BL |
| 7/12/03 | 7:11 | 6,484 | 294 | 6190 | 0.109 | 1750 | 5.1 | ok | ok | BL |
| 7/12/03 | 10:53 | 6,622 | 345 | 6277 | 0.109 | 1749 | 5.1 | ok | ok | BL |
| 7/13/03 | 11:27 | 6,349 | 351 | 5998 | 0.109 | 1750 | 5.9 | ok | ok | BL |
| 7/13/03 | 16:35 | 7,073 | 323 | 6750 | 0.109 | 1750 | 5.9 | ok | ok | BL |
| 7/15/03 | 11:00 | 7,281 | 306 | 6975 | 0.109 | 1750 | 5.9 | ok | ok | BL |
| 7/15/03 | 15:30 | 6,483 | 349 | 6134 | 0.109 | 1747 | 5.8 | ok | ok | BL |
| 7/16/03 | 7:30 | 7,052 | 323 | 6729 | 0.109 | 1749 | 5.9 | ok | ok | BL |
| 7/16/03 | 15:45 | 6,478 | 327 | 6151 | 0.109 | 1748 | 5.7 | ok | ok | BL |
| 7/17/03 | 10:28 | 7,267 | 338 | 6929 | 0.109 | 1750 | 5.7 | ok | ok | BL |
| 7/17/03 | 16:15 | 6,279 | 305 | 5974 | 0.109 | 1751 | 5.7 | ok | ok | BL |
| 7/25/03 | 8:00 | 7,193 | 380 | 6813 | 0.109 | 1750 | 5.7 | ok | ok | JS |
| 7/25/03 | 17:05 | 7,062 | 344 | 6718 | 0.109 | 1750 | 5.4 | ok | ok | JS |
| 7/28/03 | 7:50 | 7,297 | 343 | 6957 | 0.109 | 1750 | 5.6 | ok | ok | JS |
| 7/28/03 | 17:10 | 7,519 | 345 | 7174 | 0.109 | 1751 | 5.6 | ok | ok | JS |
| Remarks _____ | | | | | | | | | | |
| +20% | 8,536 | | | | | | | | | |
| -20% | 5,690 | | | | | | | | | |

Daily Source Range
Instrument:L-2221 # 103942 Probe: L-43-68# 160790



Daily Background Range

Instrument:L-2221 #103942 Probe: L-43-68 # 160790





Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

3/27/2003

Calibration Certificate for 2221, Serial # 103942, Bar Code # , Property # SEC-5208

Date: 03/27/03

Date Last Cal. Expires: 04/04/03

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Due for Calibration

EQUIPMENT USED DURING CALIBRATION

| | | |
|--------------|------------------|-------------------|
| MODEL: 500-2 | SERIAL #: 132896 | CAL DUE: 11/26/03 |
| MODEL: | SERIAL #: | CAL DUE: |

AS FOUND DATA

Geotropism: SAT AF Instrument Condition: SAT AL Instrument Condition: SAT

| | | | | |
|--|--------------------|-------------------|---|-----------------------|
| HIGH VOLTAGE (+/- 10% tolerance) | AS FOUND HV | AS LEFT HV | <input type="checkbox"/> New Batteries? | AF Mechanical Zero: 0 |
| 500 V: | 506 | AF | Threshold ratio: 100=10mV | AL Mechanical Zero: 0 |
| 1000 V: | 1000 | AF | AF THRESHOLD: 10.0 mV | AF HV Reading: 1068 V |
| 1500 V: | 1494 | AF | AL THRESHOLD: 10.0 mV | AL HV Reading: 1250 V |

RATE METER

| SCALE | RATE CPM | AS FOUND | % ERROR | AS LEFT | % ERROR |
|--------------------------|----------|----------|---------|---------|---------|
| x.1 or x1 | 100 | 100 | 0.00% | AF | 0.00% |
| | 250 | 250 | 0.00% | AF | 0.00% |
| | 400 | 395 | 1.25% | AF | 1.25% |
| x1 or x10 | 1000 | 1000 | 0.00% | AF | 0.00% |
| | 2500 | 2500 | 0.00% | AF | 0.00% |
| | 4000 | 3950 | 1.25% | AF | 1.25% |
| x10 or x100 (x1000) | 10K | 10 | 0.00% | AF | 0.00% |
| | 25K | 25 | 0.00% | AF | 0.00% |
| | 40K | 39.5 | 1.25% | AF | 1.25% |
| x100 or x1000 (x1000) | 100K | 100 | 0.00% | AF | 0.00% |
| | 250K | 250 | 0.00% | AF | 0.00% |
| | 400K | 395 | 1.25% | AF | 1.25% |
| SCALER: | 250 | 250 | 0.00% | AF | 0.00% |

LOG SCALE

| | | | |
|----------|-------|----------|--------|
| AF 200: | 200 | % ERROR: | 0.00% |
| AF 2000: | 2000 | % ERROR: | 0.00% |
| AF 20K: | 19 K | % ERROR: | 5.00% |
| AF 200K: | 180 K | % ERROR: | 10.00% |
| AL 200: | AF | % ERROR: | 0.00% |
| AL 2000: | AF | % ERROR: | 0.00% |
| AL 20K: | AF K | % ERROR: | 5.00% |
| AL 200K: | AF K | % ERROR: | 10.00% |

Is the As Found Data Within 20% of the Set Point?

Is the As Found Data Within 20% of the Set Point?

REPRODUCIBILITY

| | | | |
|----------------------|-------|-------|-------|
| x.1 or x1 Scale: | 250 | 250 | 250 |
| x1 or x10 Scale: | 2500 | 2500 | 2500 |
| x10 or x100 Scale: | 25 K | 25 K | 25 K |
| x100 or x1000 Scale: | 250 K | 250 K | 250 K |

Audio Response: SAT
 Audio Divide: SAT
 Push Buttons: SAT
 Lamp: SAT
 Scaler/Digital: SAT

Are the Individual Counts Within 10% of the Average?

Fast / Slow Response Function Properly?

Comments

Married as a set with: Model: 43-37

Serial #: PR149715

Also calibrated as a married set to 43-68 serial # PR160790.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

03/27/04

Performed by:

Carl Hall

Reviewed by:

J. Hall

Date:

3/27/03

Printed Name:

Carl Hall

Entered In Computer Maintenance By:

Carl Hall

Date:

3/27/03



Safety and Ecology Corporation

2800 Solway Road
Knoxville, TN 37931

Calibration Certificate

3/27/2003

Calibration Certificate for 43-68, Serial # PR160790, Bar Code #, Property # SEC-5210

Date: 03/27/03

Date Last Cal. Expires: 07/17/03

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 2221 SERIAL #: 103942 CAL DUE 03/27/04

MODEL: SERIAL #: CAL DUE

| NIST TRACEABLE SOURCES USED | SOURCE | ISOTOPE | ACTIVITY | ASSAY DATE |
|-----------------------------|---------|---------|-------------------------|------------|
| | 4071-02 | Th-230 | 35400 dpm | 2/11/2003 |
| | 4072-02 | Tc-99 | 29800 dpm <i>14,600</i> | 2/6/2003 |
| | 4076-02 | Sr-90 | 16600 dpm | 2/1/2003 |
| | 4079-02 | Pu-239 | 29300 dpm | 2/11/2003 |

AS FOUND DATA

AF Instrument Condition: SAT AL Instrument Condition: SAT Efficiency from last cal.

Setpoints from last cal.: HV (Alpha): 1250 V HV (Beta): 1750 V Threshold: 10 mV Pu: 23.07 % Tc: 25.88 %

AF Response in CPM: Alpha Beta 2nd AF Response in CPM: Alpha Beta Th: 21.08 % Sr: 34.81 %

Background: 0 341

Pu-239: 6594

Tc-99: 8176 *27 43.75*

AF Efficiencies: *22.51%* *26.29%* Th-230 Sr-90 *23.86%* *39.69%* Th-230 Sr-90

Th-230 / Sr-90: 8445 / 6929 *23.86%* *39.69%* *23.86%* *39.69%*

Is the As Found Data Within 20% of the efficiency from the last cal.?

Reproducibility: Isotope: Sr-90 6880 6947 6892 Average: 6906.3

Are the individual counts within 10% of the average?

If the As Found data (even after calibration) is within 10% of the last calibration, then the technician may N/A Plateau Data and On-Off to Comments. Property # is from source unless otherwise specified.

Alpha Source: Th-230

PLATEAU DATA

Beta Source: Tc-99

| HV (Alpha) | Response (CPM): | | Background (CPM): | Net Eff. |
|------------|-----------------|-------|-------------------|----------|
| | A ch. | A ch. | | |
| N/A | | | | |
| | | | | |
| | | | | |
| | | | | |

| HV (Beta) | Response (CPM): | | Background (CPM): | Net Eff. |
|-----------|-----------------|-------|-------------------|----------|
| | B ch. | B ch. | | |
| N/A | | | | |
| | | | | |
| | | | | |
| | | | | |

Alpha HV Pu-239 Th-230 CPM CPM

BACKGROUND

Alpha Beta Beta HV Tc-99 Sr-90 CPM CPM CPM CPM

AL Efficiencies: *22.51%* *26.29%* AL Efficiencies: *23.86%* *39.69%*

Comments:

Married as a set with: Model: 2221 Serial #: 103942

Calibrated as a married set.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration: 03/27/04

Performed by: *Carl Hall*

Reviewed by: *[Signature]* Date: 3/27/03

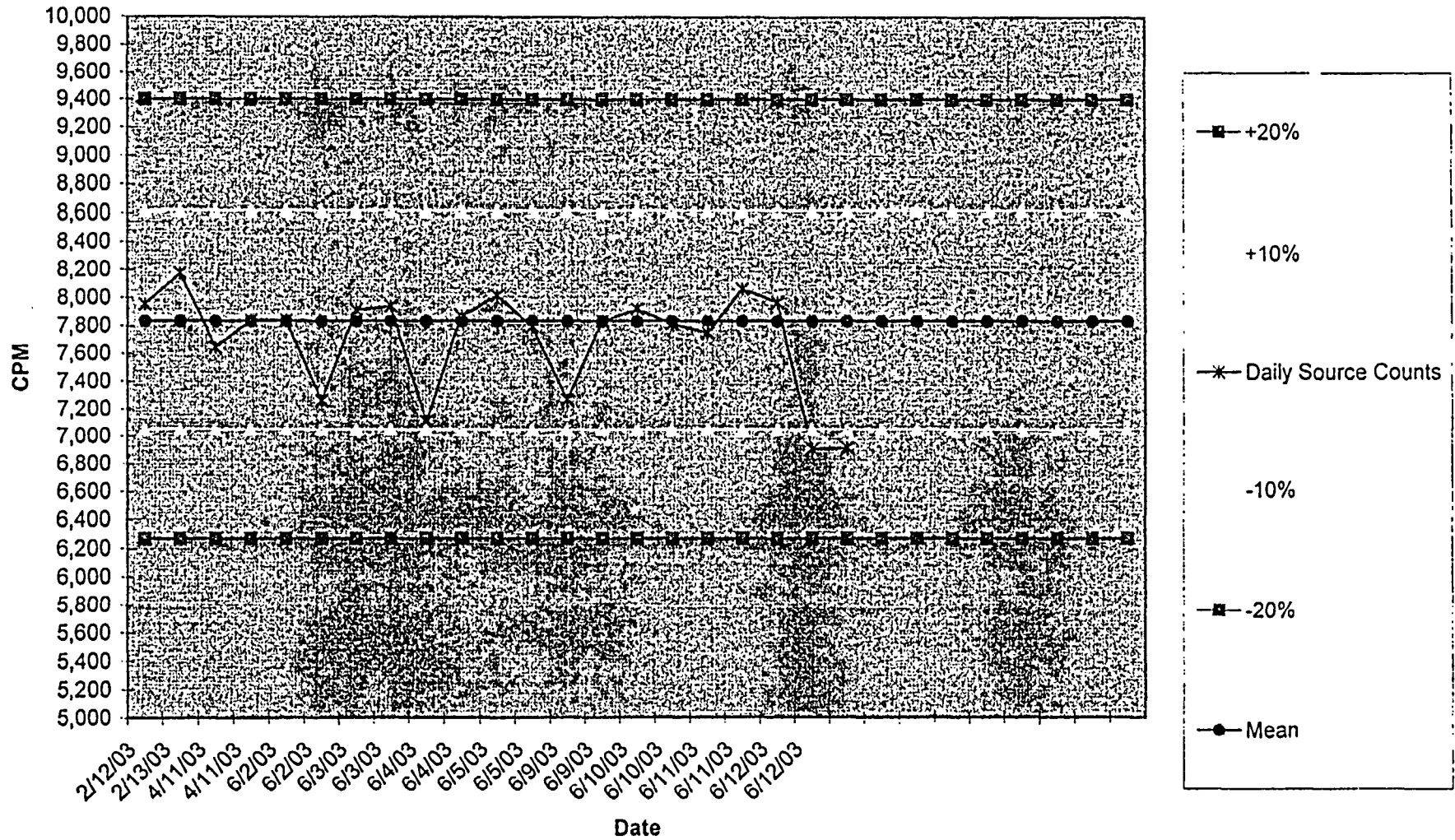
Printed Name: Carl Hall

Entered in Computer Inventory By: *[Signature]* Date: 3/27/03

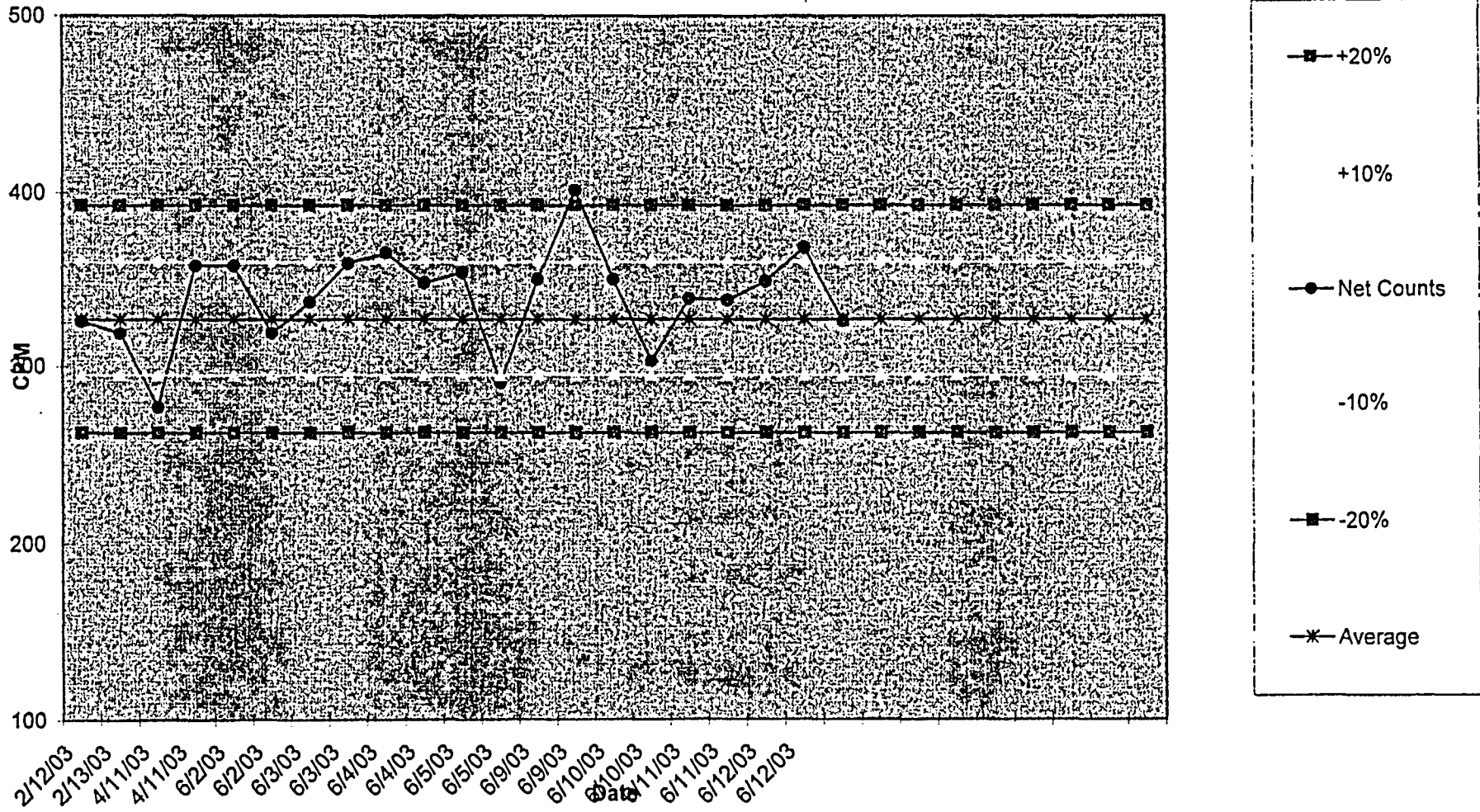
Instrument Set 11

Jaily Source

Daily Source Range
Instrument:L-2221 # 187752 Probe: L-43-68 # 160700



Daily Background Range
Instrument:L-2221 # 187752 Probe: L-43-68 # 160700





Designer and Manufacturer
of
Scientific and Industrial
Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER SAFETY & ECOLOGY CORP ORDER NO. 291067 / 269336

Ludlum Measurements, Inc. Model 2221 Serial No. 187752
Mfg. Ludlum Measurements, Inc. Model 43-68 Serial No. PA160700
Cal. # 16-Jan-03 Cal Due Date 16-Jan-04 Cal. Interval 1 Year Meterface 202-159

check mark applies to applicable Instr. and/or detector IAW mfg. spec. T. 71 °F RH 20 % Alt 712.8 mm Hg

New Instrument Instrument Received Within Toler. +10% 10-20% Out of Tol. Requiring Repair Other-See comments
 Mechanical ck. Meter Zeroed Background Subtract Input Sens. Linearity
 F/S Resp. ck. Reset ck. Window Operation Geotropism
 Audio ck. Alarm Setting ck. Batt. ck. (Min. Volt) 5.0 VDC
 Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. Calibrated in accordance with LMI SOP 14.9 rev 02/07/97.

Instrument Volt Set Comments V Input Sens. Comment mV Det. Oper. Comments V at Comment mV Threshold Dial Ratio 100 = 4 mV

HV Readout (2 points) Ref./Inst. 500 / 500 V Ref./Inst. 1992 / 2000 V

COMMENTS:

HV Alpha Voltage: 1250v
HV Beta Voltage: 1700v
Threshold: 4mv

Tc-99 Eff: 61%, Source Serial: 635183, Source Size: 14300cpm, Source Count: 9176cpm, Background: 325cpm (67)
Ni-63 Eff: 26%, Source Serial: 4017, Source Size: 148575cpm, Source Count: 40612cpm, Background: 325cpm (27)

Firmware: 26 10 10
Calibrated with 39" cable

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

| RANGE/MULTIPLIER | REFERENCE CAL POINT | INSTRUMENT REC'D "AS FOUND READING" | INSTRUMENT METER READING* |
|------------------|---------------------|-------------------------------------|---------------------------|
| X 1000 | 400 Kcpm | 400 | 400 |
| X 1000 | 100 Kcpm | 100 | 100 |
| X 100 | 40 Kcpm | 400 | 400 |
| X 100 | 10 Kcpm | 100 | 100 |
| X 10 | 4 Kcpm | 400 | 400 |
| X 10 | 1 Kcpm | 100 | 100 |
| X 1 | 400 cpm | 400 | 400 |
| X 1 | 100 cpm | 100 | 100 |

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

| REFERENCE CAL POINT | INSTRUMENT RECEIVED | INSTRUMENT METER READING* | REFERENCE CAL POINT | INSTRUMENT RECEIVED | INSTRUMENT METER READING* |
|--------------------------|---------------------|---------------------------|---------------------|---------------------|---------------------------|
| Digital Readout 400 Kcpm | 40008(6) | 39888(6) | Log Scale 500 Kcpm | 500k | 500k |
| 40 Kcpm | 4001 | 3989 | 50 Kcpm | 50k | 50k |
| 4 Kcpm | 400 | 399 | 5 Kcpm | 5k | 5k |
| 400 cpm | 40 | 40 | 500 cpm | 500cpm | 500 |
| 40 cpm | 4 | 4 | 50 cpm | 50 | 50 |

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978. State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N 1162 G112 M565 5105 T1008 T879 E552 E551 Neutron Am-241 Be S/N T-304
 Alpha S/N _____ Beta S/N _____ Other _____
500 S/N 189509 Oscilloscope S/N _____ Multimeter S/N 80820360

Calibrated By: [Signature] Date 16 Jan 03
Revised By: [Signature] Date 20 Jan 03



Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 43-68 Serial No. PR160700

Customer SAFETY & ECOLOGY CORP

Order #. 291067 / 269336

Counter 2221 Serial No. 187752

Counter Input Sensitivity 4 mV
Comments

Count Time 1 minute

Distance Source to Detector Surface

Other _____

High Voltage _____ Isotope Pu 239 Isotope Tl 99 Isotope _____ Isotope _____
Background _____ Size 12600 CPM Size 14300 CPM Size _____ Size _____

| High Voltage | Background | Isotope Pu 239 Size | Isotope Tl 99 Size | Isotope _____ Size | Isotope _____ Size |
|----------------------|------------|------------------------|-----------------------|-----------------------|-----------------------|
| 1150 | 0 | 6364 | | | |
| 1200 | 0 | 6497 | | | |
| <i>ALPHA</i> 1250 | 0 | 6445 | | | |
| 1300 | 3 | 6488 | | | |
| 1350 | 4 | 6485 | | | |
| | | | | | |
| | | | | | |
| <i>BETA</i> 1650 | 144 | | 7213 | | |
| 1700 | 325 | | 9176 | | |
| 1750 | 711 | | 9441 | | |
| | | | | | |
| | | | | | |
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| | | | | | |
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| | | | | | |
| | | | | | |
| | | | | | |

Signature [Handwritten Signature]

Date 16 Jun 09



Designer and Manufacturer
of
Scientific and Industrial
Instruments

Work Order: 291067

LUDLUM MEASUREMENTS, INC
POST OFFICE BOX 810 PH: 915-235-5494
501 OAK STREET FAX: 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Date Received: 01/10/2003 Received Via: FESON Condition Received: FAIR / NO CABLES, BA

BILL TO:
SAFETY & ECOLOGY CORP
% UNIV OF VIRGINIA
675 OLD RESERVIOR RD
CHARLOTTESVILLE VA 22903
NUC RES FACILITY

BILL TO:
SAFETY & ECOLOGY CORP
SEC BUSINESS CENTER
2800 SOLWAY ROAD
KNOXVILLE TN 37931

CUSTOMER #: 11997

red

Reason for Return: Repair/Calibration Cal Interval / Special Instructions: 1 YR / NI-63 EFF JTC 99 - Need 1-17

Comments: *Could - BOTH DETECTOR RE-WINDOWS / PR116722 RE-STRIPLES*

LABOR 3 hrs

| ITEM | QTY | PART # | DESCRIPTION | PRICE | COST | ITEM | QTY | PART # | DESCRIPTION | PRICE | COST |
|------|---------|--------|-------------------------------------|-------|------|------|-----|---------|-------------|-------|------|
| 01* | 1.00 EA | 2221 | M 2221 FOR REPAIR/CAL *187752 | | | -4 | 48" | 21-9327 | 48" Steing | .10 | 4.80 |
| 02* | 1.00 EA | 2221 | M 2221 FOR REPAIR/CAL *187762 | | | 1/2 | 8 | 21-9313 | DBALLERS | - | - |
| | 1.00 EA | 43-68 | M 43-68 FOR REPAIR/CAL *PR160700 | | | | | | | | |
| 04 | 1.00 EA | 43-68 | M 43-68 FOR REPAIR/CAL *PR116722 | | | | | | | | |

Instrument Calibrated: 2 at 50.00 Total Parts Cost: 4.80 Sub Total Calibration, Parts, and Labor: 269.80

Secondary Detectors: _____ at _____ Total Calibration Charge: 100 Shipping Charges: _____

Extended Calibration: _____ at _____ Total Labor: 165.00 Total Charges: _____

Labor: 3 hour(s) at \$ 55.00 per hour

Signed: W. G. K. Date: 16 Jan 03

Witnessed: Randy Hamer Date: 20 Jan 03

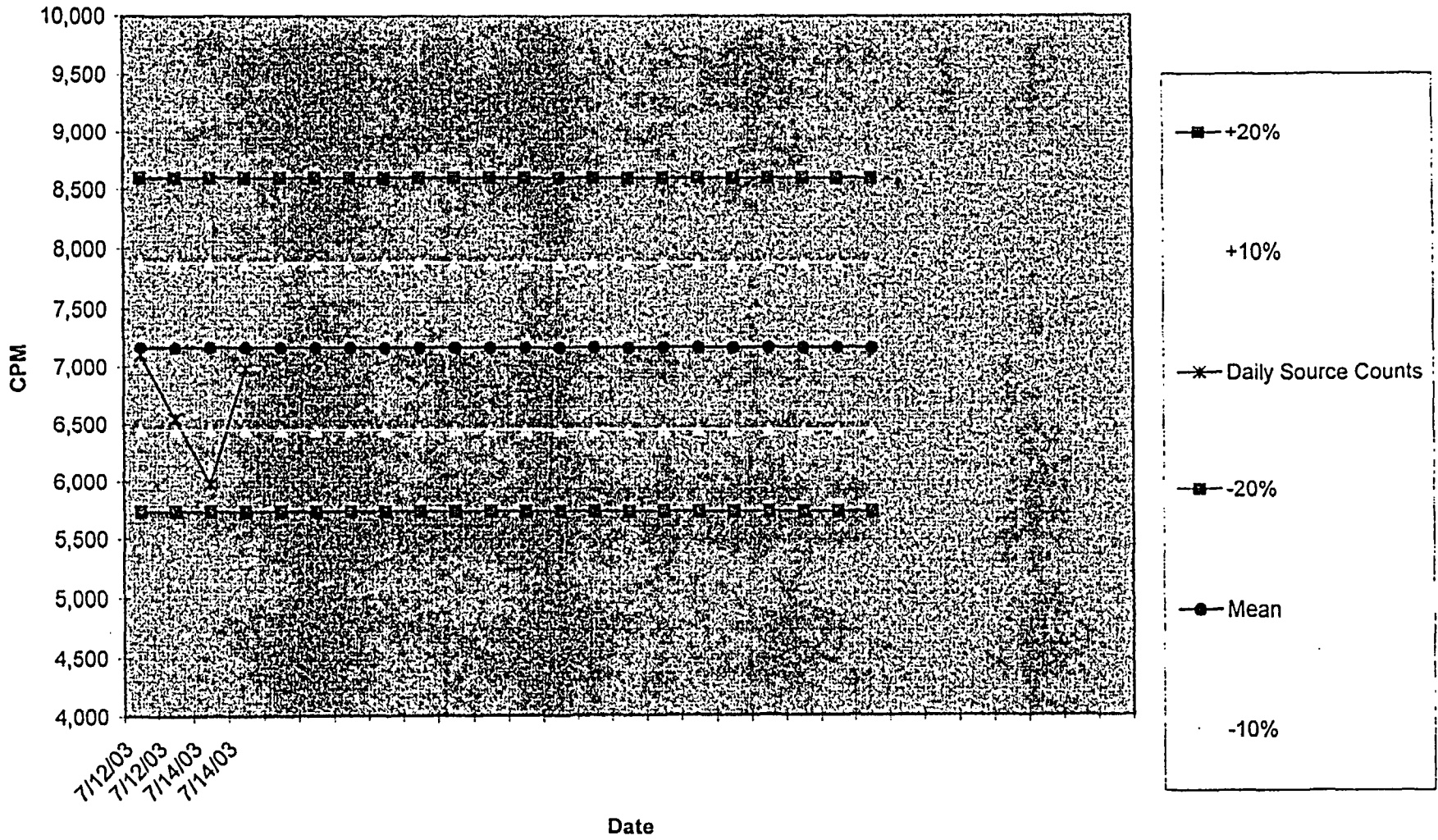
**DO NOT PAY!
INVOICE TO FOLLOW**

Date: 1/20/03 Contacted: MIKE PARTEN By: _____

Instrument Set 12

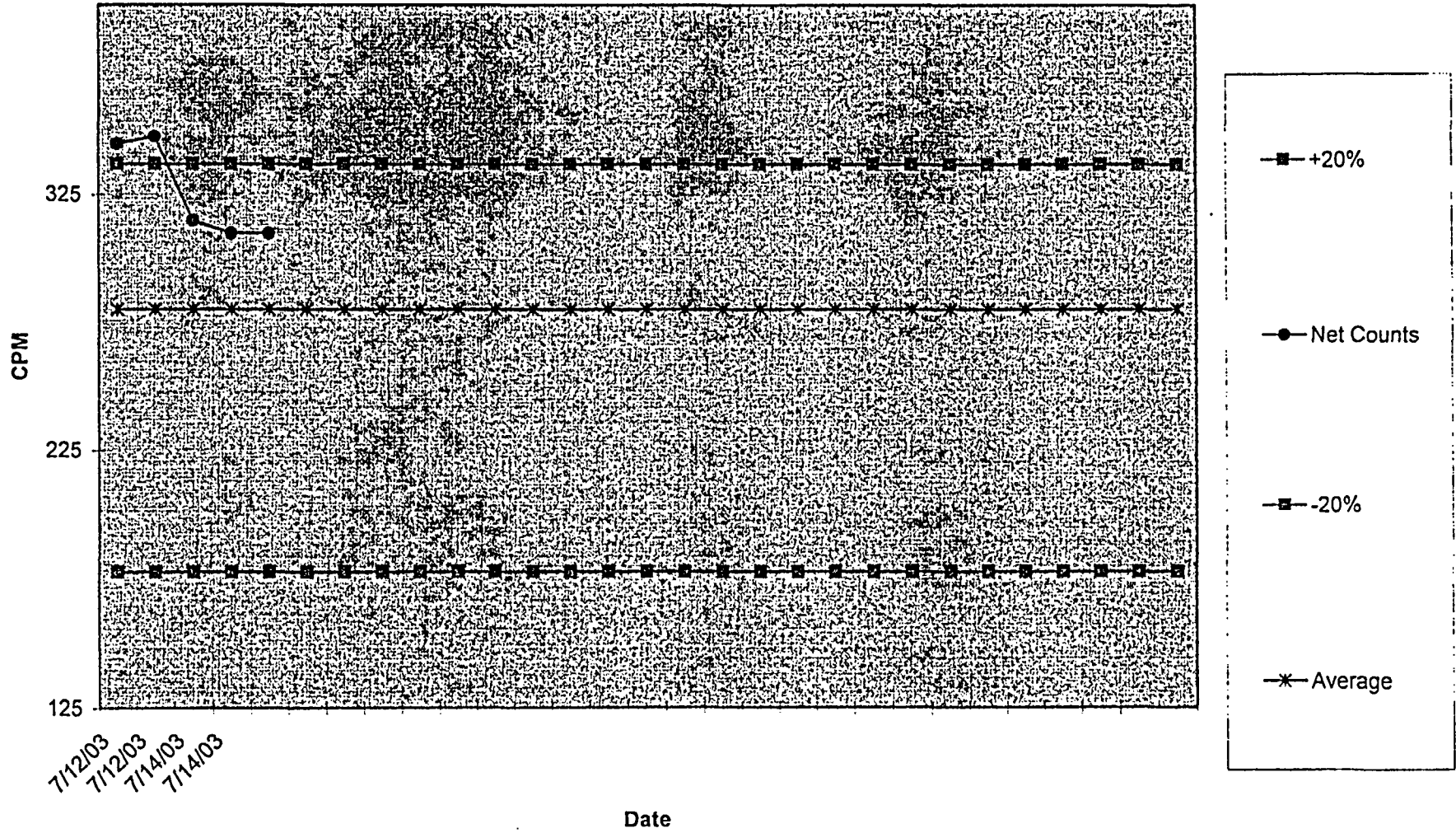
D. Source

Daily Source Range
Instrument:L-2221 # 157024 Probe: L-43-68 # 160687



Daily Background Range

Instrument:L-2221 # 157024 Probe: L-43-68# 160687



UVAP
INITIAL SETUP / ACCEPTABLE RANGE DATA SHEET

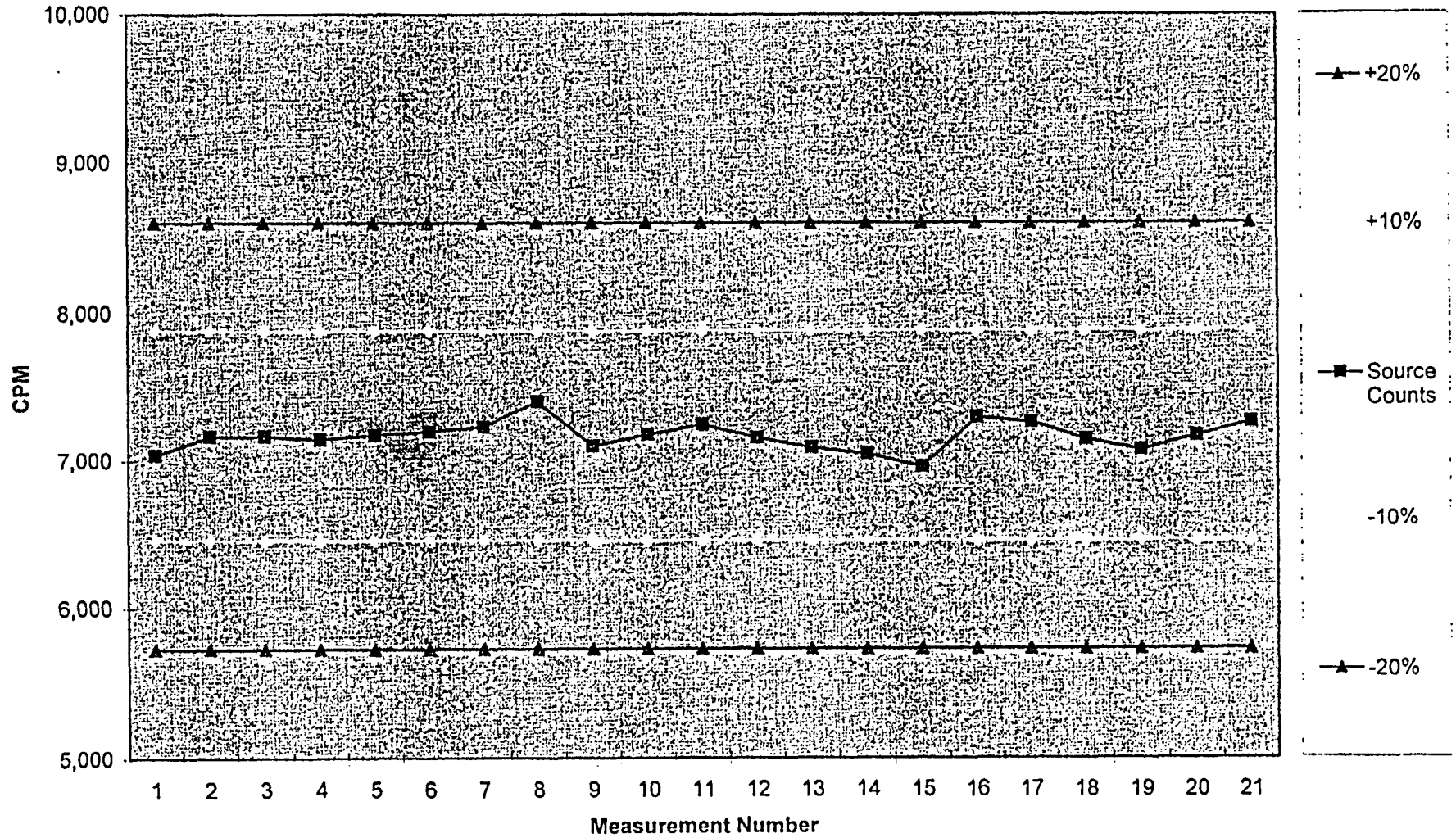
INSTRUMENT: L2221 SERIAL #: 157024 CAL DUE: 6/27/04
 PROBE: L43-68 SERIAL #: 160687 CAL DUE: 6/27/04
 SOURCE: Tc-99 SERIAL #: C4700730 Setup Date: 7/9/03
 ACTIVITY: 35800 dpm
 BKG COUNT TIME: 1MINUTE SOURCE COUNT TIME: 1 MINUTE
 CALIBRATED OPERATING VOLTAGE: 1700 THRESHOLD VALUE: 100

| COUNT # | SOURCE CPM | BKG CPM | NET SOURCE CTS | EFFICIENCY (D) |
|----------|------------|---------|----------------|----------------|
| 1 | 7,332 | 295 | 7,037 | N/A |
| 2 | 7,474 | 309 | 7,165 | N/A |
| 3 | 7,519 | 353 | 7,166 | N/A |
| 4 | 7,455 | 310 | 7,145 | N/A |
| 5 | 7,505 | 328 | 7,177 | N/A |
| 6 | 7,510 | 311 | 7,199 | N/A |
| 7 | 7,580 | 348 | 7,232 | N/A |
| 8 | 7,730 | 328 | 7,402 | N/A |
| 9 | 7,438 | 340 | 7,098 | N/A |
| 10 | 7,490 | 314 | 7,176 | N/A |
| 11 | 7,568 | 325 | 7,243 | N/A |
| 12 | 7,504 | 351 | 7,153 | N/A |
| 13 | 7,407 | 322 | 7,085 | N/A |
| 14 | 7,364 | 321 | 7,043 | N/A |
| 15 | 7,274 | 321 | 6,953 | N/A |
| 16 | 7,643 | 352 | 7,291 | N/A |
| 17 | 7,566 | 307 | 7,259 | N/A |
| 18 | 7,469 | 329 | 7,140 | N/A |
| 19 | 7,378 | 310 | 7,068 | N/A |
| 20 | 7,500 | 335 | 7,165 | N/A |
| 21 | 7,593 | 333 | 7,260 | N/A |
| Averages | 7,490 | 326 | 7,165 | N/A |

+ 10% 7,881 -10% 6,448
 + 20% 8,598 - 20% 5,732

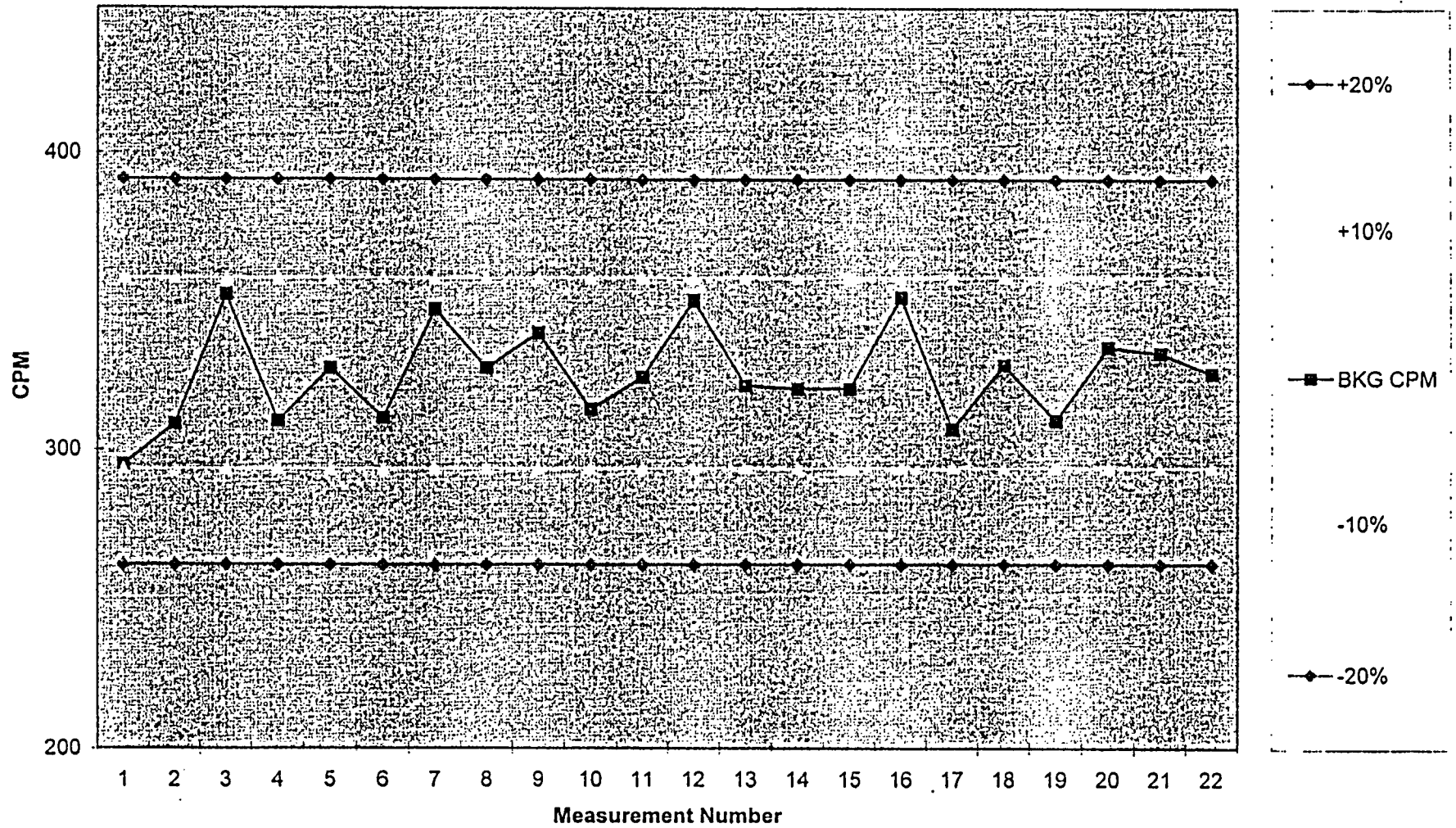
PERFORMED BY: Alice Thompson DATE: 07/09/03
 RE WED BY: Frank Myers DATE: 07/09/03

Initial Setup Source Range 7/09/03
Instrument:L-2221 # 157024 Probe: L-43-68 # 160687



.KG

Initial Setup Background Range 7/09/03
Instrument: L-2221 # 157024 Probe: L-43-68 # 160687





Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

7/2/2003

Calibration Certificate for 2221, Serial # 157024, Bar Code # ,Property # SEC-5185

Date: 06/27/03

Date Last Cal. Expires: 03/21/04

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2 SERIAL #: 132896 CAL DUE: 11/26/03

MODEL: SERIAL #: CAL DUE:

AS FOUND DATA

Geotropism: SAT AF Instrument Condition: SAT AL Instrument Condition: SAT

HIGH VOLTAGE

(+/- 10% tolerance)

| AS FOUND HV | AS LEFT HV | AF Mechanical Zero: | AL Mechanical Zero: |
|--------------|------------|---------------------|---------------------|
| 500 V: 507 | AF | 0 | 0 |
| 1000 V: 1001 | AF | 1300 V | |
| 1500 V: 1498 | AF | 1300 V | |

New Batteries?

Threshold ratio: 100=10mV

AF THRESHOLD: 10.0 mV

AL THRESHOLD: 10.0 mV

RATE METER

| SCALE | RATE CPM | AS FOUND | % ERROR | AS LEFT | % ERROR |
|-----------------------|----------|----------|---------|---------|---------|
| x.1 or x1 | 100 | 100 | 0.00% | AF | 0.00% |
| | 250 | 250 | 0.00% | AF | 0.00% |
| | 400 | 395 | 1.25% | AF | 1.25% |
| x1 or x10 | 1000 | 1000 | 0.00% | AF | 0.00% |
| | 2500 | 2500 | 0.00% | AF | 0.00% |
| | 4000 | 3950 | 1.25% | AF | 1.25% |
| x10 | 10K | 10 | 0.00% | AF | 0.00% |
| | 25K | 25 | 0.00% | AF | 0.00% |
| | 40K | 39.5 | 1.25% | AF | 1.25% |
| x100 or x1000 (x1000) | 100K | 100 | 0.00% | AF | 0.00% |
| | 250K | 250 | 0.00% | AF | 0.00% |
| | 400K | 395 | 1.25% | AF | 1.25% |

DIGITAL SCALER

| | | | |
|---|--------------|---------------|--------------|
| AF 250: 250 | % ERR: 0.00% | AL 250: AF | % ERR: 0.00% |
| AF 2500: 2499 | % ERR: 0.04% | AL 2500: AF | % ERR: 0.04% |
| AF 25K: 24.99 K | % ERR: 0.04% | AL 25K: AF K | % ERR: 0.04% |
| AF 250K: 249.8 K | % ERR: 0.08% | AL 250K: AF K | % ERR: 0.08% |
| <input checked="" type="checkbox"/> Is the As Found Data Within 20% of the Set Point? | | | |

LOG SCALE

| | | | |
|---|---------------|---------------|---------------|
| AF 200: 200 | % ERR: 0.00% | AL 200: AF | % ERR: 0.00% |
| AF 2000: 2000 | % ERR: 0.00% | AL 2000: AF | % ERR: 0.00% |
| AF 20K: 18 K | % ERR: 10.00% | AL 20K: AF K | % ERR: 10.00% |
| AF 200K: 190 K | % ERR: 5.00% | AL 200K: AF K | % ERR: 5.00% |
| <input checked="" type="checkbox"/> Is the As Found Data Within 20% of the Set Point? | | | |

Is the As Found Data Within 20% of the Set Point?

Is the As Found Data Within 20% of the Set Point?

REPRODUCIBILITY

| | | | |
|----------------------|-------|-------|-------|
| x.1 or x1 Scale: | 250 | 250 | 250 |
| x1 or x10 Scale: | 2500 | 2500 | 2500 |
| x10 or x100 Scale: | 25 K | 25 K | 25 K |
| x100 or x1000 Scale: | 250 K | 250 K | 250 K |

Audio Response: SAT

Audio Divide: SAT

Push Buttons: SAT

Lamp: SAT

Scaler/Digital: SAT

Are the Individual Counts Within 10% of the Average?

Fast / Slow Response Function Properly?

Comments

Married as a set with: Model: 43-37

Serial #: PR066273

Calibrated as a set to a 43-37 and 43-68 # PR160687.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

06/27/04

Performed by:

[Signature]

Reviewed by:

[Signature]

Date:

7/2/03

Printed Name:

Carl Hall

Entered In Computer Maintenance By:

[Signature]

Date:

7/2/03



Safety and Ecology Corporation

2800 Solway Road
Knoxville, TN 37931

Calibration Certificate

7/2/2003

Calibration Certificate for 43-68, Serial # PR160687, Bar Code #, Property # SEC-5385

Date: 06/27/03

Date Last Cal. Expires: 07/17/03

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Due and Repair

EQUIPMENT USED DURING CALIBRATION

MODEL: 2221

SERIAL #: 157024

CAL DUE 03/21/04

MODEL:

SERIAL #:

CAL DUE

NIST TRACEABLE SOURCES USED

| SOURCE | ISOTOPE | ACTIVITY | ASSAY DATE |
|---------|---------|-----------|-----------------|
| 4071-02 | Th-230 | 35400 dpm | 17900 2/11/2003 |
| 4072-02 | Tc-99 | 29800 dpm | 18600 2/6/2003 |
| 4076-02 | Sr-90 | 16600 dpm | 11600 2/1/2003 |
| 4079-02 | Pu-239 | 29300 dpm | 14900 2/11/2003 |

AS FOUND DATA

AF Instrument Condition: SAT

SAT

AL Instrument Condition: SAT

Efficiency from last cal.

| | | | | | | |
|---------------------------|--------------------|-------------------|-------------------------|-------------|-------------|--------|
| Setpoints from last cal.: | HV (Alpha): 1300 V | HV (Beta): 1800 V | Threshold: 10 mV | Pu: 23.20 % | Tc: 27.26 % | |
| AF Response in CPM: | Alpha | Beta | 2nd AF Response in CPM: | Alpha | Beta | |
| Background: | 0 | 0 | (after repair) | 2 | 424 | |
| Pu-239: | 0 | | | 6522 | | |
| Tc-99: | | 0 | | | 8244 | |
| AF Efficiencies: | 0.00% | 0.00% | Th-230 | Sr-90 | 22.25% | 26.24% |
| Th-230 / Sr-90: | 0 | 0 | 0.00% | 0.00% | 8530 | 7315 |
| | | | | | 24.09% | 41.51% |

Is the As Found Data Within 20% of the efficiency from the last cal.?

Reproducibility: Isotope: Sr-90 6935 6945 6789 Average: 6889.7

Are the individual counts within 10% of the average?

If the As Found data (even after repair) is within 10% of the last calibration, then the technician may N/A Plateau Data and go directly to Comments. Geometry = 1/8" from source unless otherwise specified.

Alpha Source: Th-230

PLATEAU DATA

Beta Source: Tc-99

| HV (Alpha) | Response (CPM): | | Background (CPM): | Net Eff. |
|------------|-----------------|-------|-------------------|----------|
| | A ch. | A ch. | | |
| N/A | | | | |

| HV (Beta) | Response (CPM): | | Background (CPM): | Net Eff. |
|-----------|-----------------|-------|-------------------|----------|
| | B ch. | B ch. | | |
| 1650 | 7776 | 250 | 25.26% | |
| 1675 | 7850 | 271 | 25.43% | |
| 1700 | 7780 | 326 | 25.01% | |
| 1725 | 7813 | 361 | 25.01% | |
| 1750 | 7883 | 377 | 25.19% | |
| 1800 | 7976 | 409 | 25.39% | |

BACKGROUND

| Alpha HV | Pu-239 | Th-230 | Alpha | Beta | Beta HV | Tc-99 | Sr-90 |
|----------|--------|--------|-------|------|---------|-------|-------|
| | | | CPM | CPM | 1700 | 7849 | 6820 |
| | | | | 321 | | | CPM |

AL Efficiencies: 25.26% 39.15%

AL Efficiencies: 25.26% 39.15%

Comments:

Married as a set with: Model: 2221

Serial #: 157024

Replaced damaged mylar and 2 broken strings. Ran new Beta plateau due to high background.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration: 06/27/04

Performed by:

[Signature]

Reviewed by:

[Signature]

Date: 7/2/03

Printed Name:

Carl Hall

Entered in Computer Inventory By:

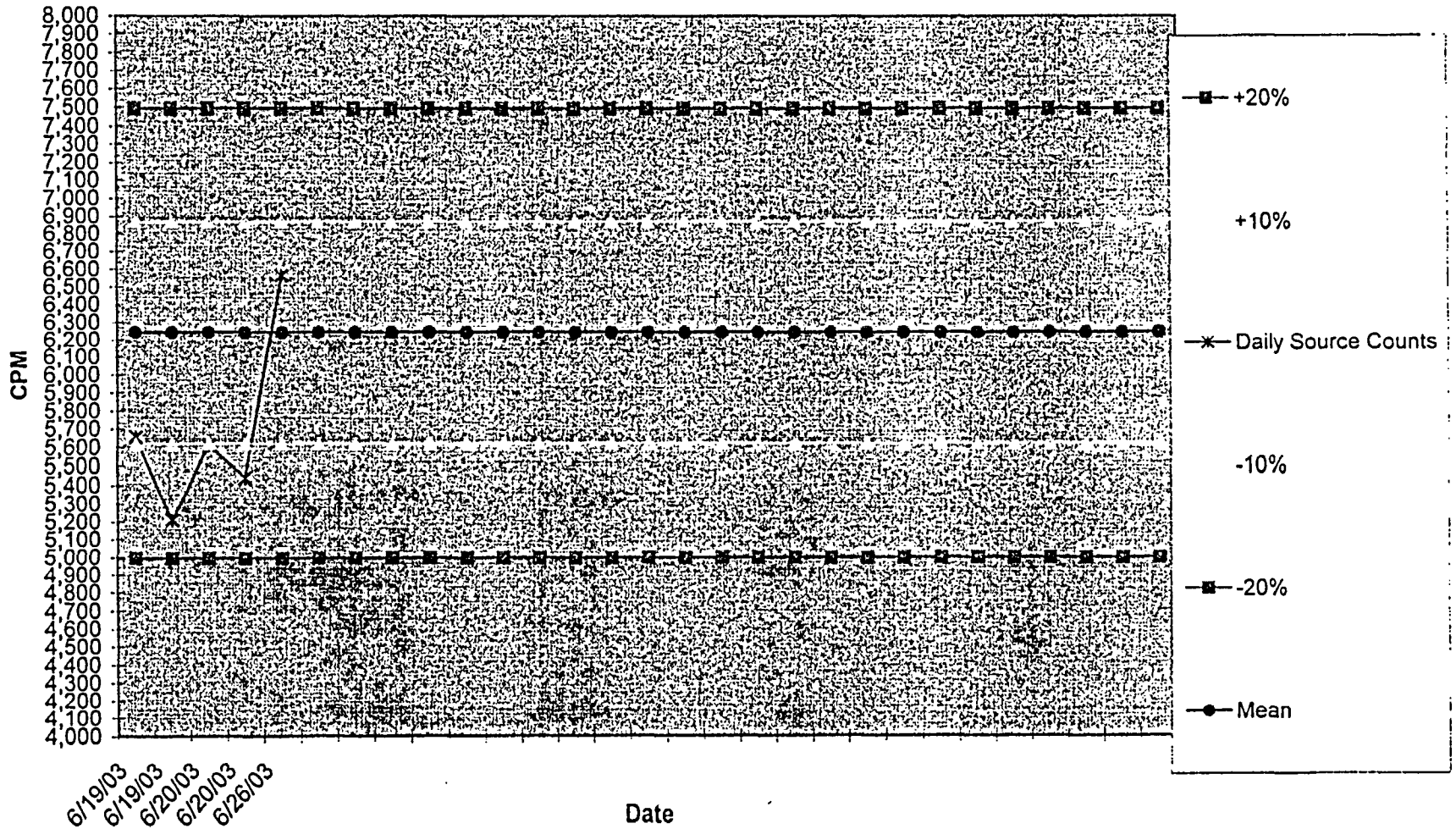
[Signature]

Date: 6/27/03

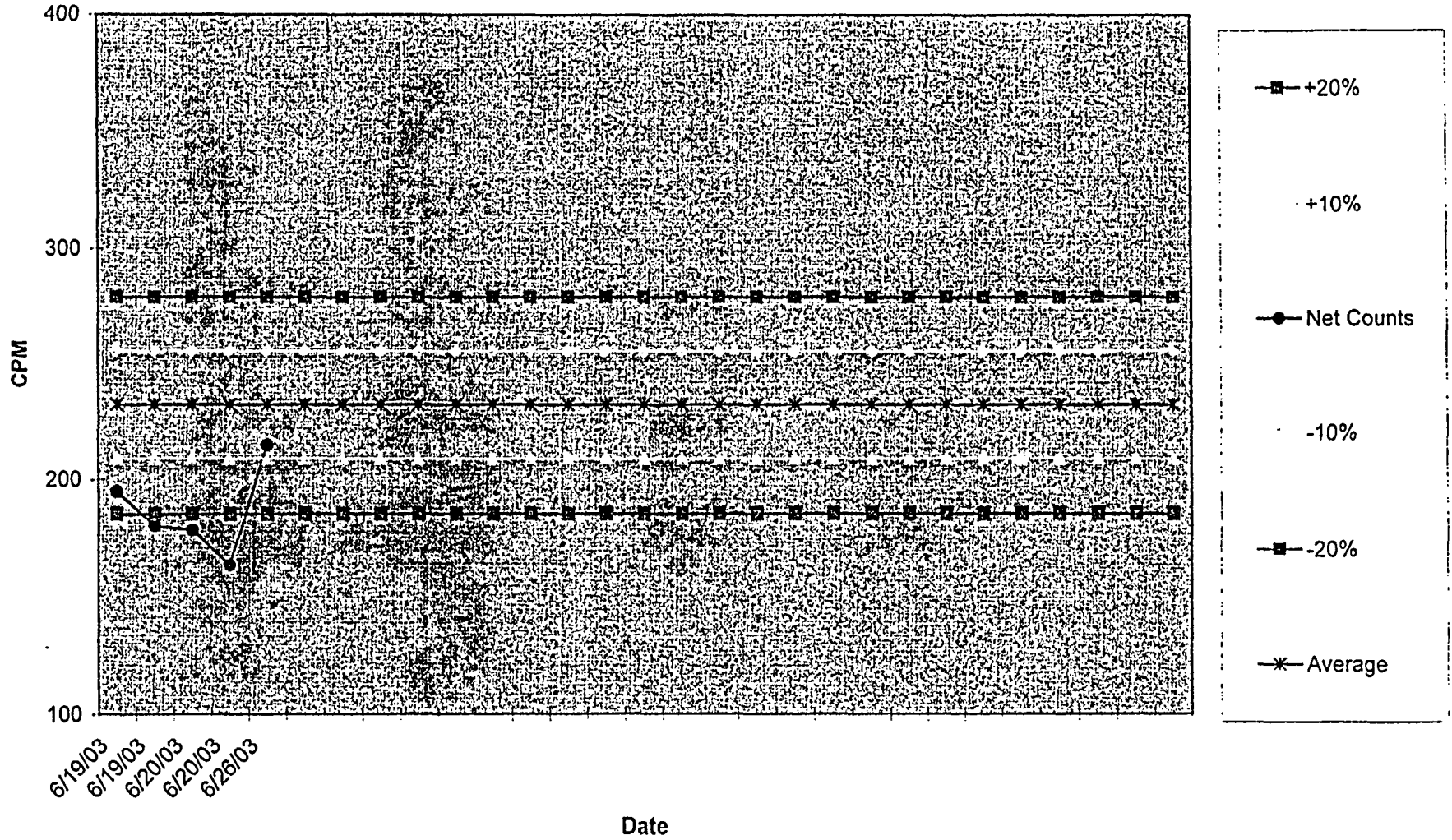
Instrument Set 13

D. Source

Daily Source Range
Instrument: L-2221 # 172035 Probe: L43-68 # 116719



Daily Background Range
Instrument:L-2221 # 172035 Probe: L43-68 # 116719



UVAP
INITIAL SETUP / ACCEPTABLE RANGE DATA SHEET

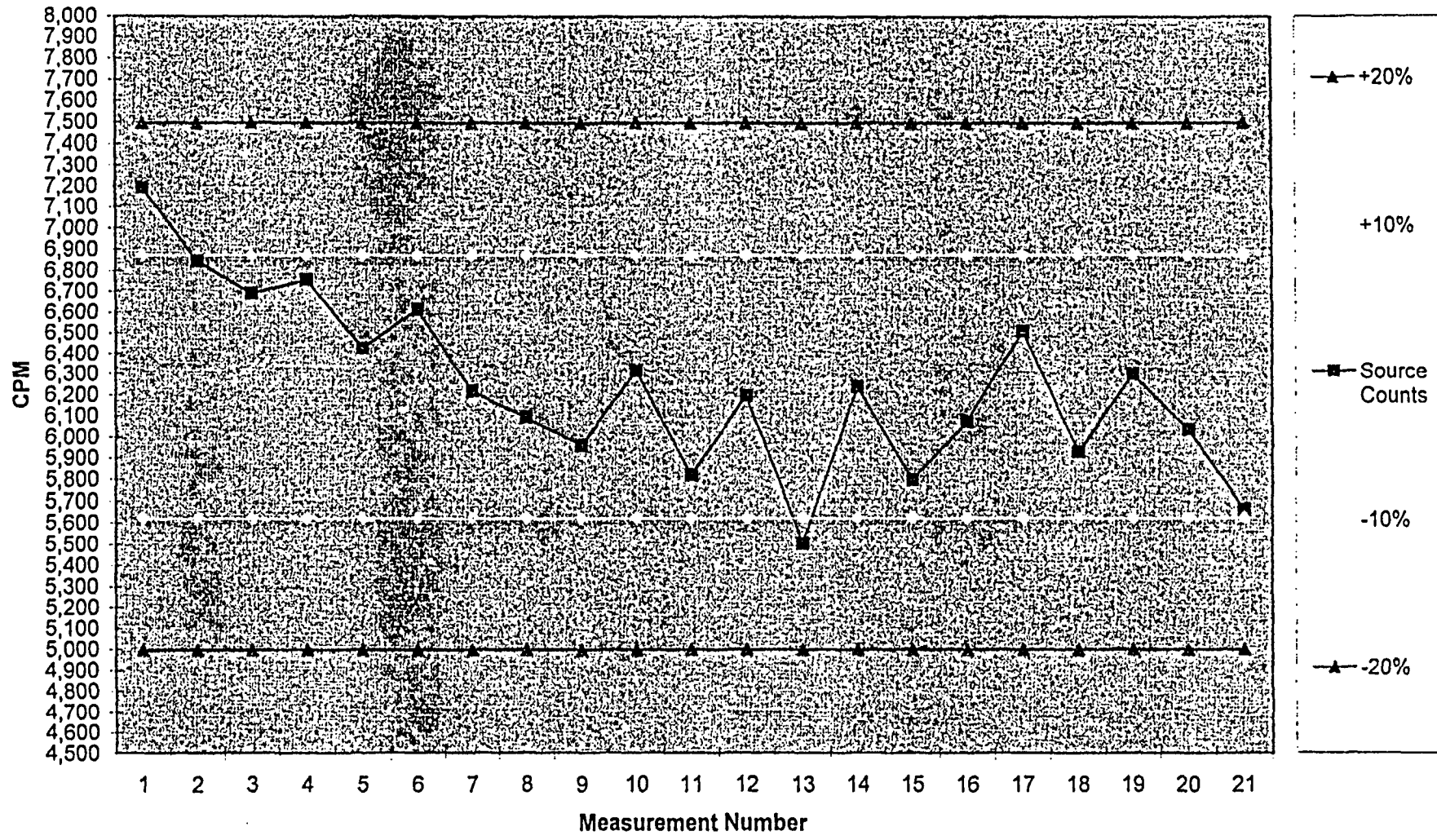
INSTRUMENT: L 2221 SERIAL #: 172035 CAL DUE: 4/10/04
 PROBE: 43-68 SERIAL #: 116719 CAL DUE: 4/10/04
 SOURCE: Tc99 SERIAL #: 98tc470 Setup Date: 6/19/03
 ACTIVITY: 35800 dpm
 BKG COUNT TIME: 1 minute SOURCE COUNT TIME: 1 minute
 CALIBRATED OPERATING VOLTAGE: 1725 THRESHOLD VALUE: 100

| COUNT # | SOURCE CPM | BKG CPM | NET SOURCE CTS | EFFICIENCY (D) |
|----------|------------|---------|----------------|----------------|
| 1 | 7,367 | 177 | 7,190 | N/A |
| 2 | 7,123 | 279 | 6,844 | N/A |
| 3 | 6,969 | 280 | 6,689 | N/A |
| 4 | 7,027 | 273 | 6,754 | N/A |
| 5 | 6,674 | 249 | 6,425 | N/A |
| 6 | 6,877 | 265 | 6,612 | N/A |
| 7 | 6,436 | 220 | 6,216 | N/A |
| 8 | 6,316 | 223 | 6,093 | N/A |
| 9 | 6,190 | 230 | 5,960 | N/A |
| 10 | 6,540 | 226 | 6,314 | N/A |
| 11 | 6,029 | 211 | 5,818 | N/A |
| 12 | 6,414 | 220 | 6,194 | N/A |
| 13 | 5,740 | 238 | 5,502 | N/A |
| 14 | 6,511 | 274 | 6,237 | N/A |
| 15 | 6,010 | 215 | 5,795 | N/A |
| 16 | 6,310 | 237 | 6,073 | N/A |
| 17 | 6,704 | 199 | 6,505 | N/A |
| 18 | 6,150 | 222 | 5,928 | N/A |
| 19 | 6,503 | 207 | 6,296 | N/A |
| 20 | 6,274 | 239 | 6,035 | N/A |
| 21 | 5,852 | 195 | 5,657 | N/A |
| Averages | 6,477 | 232 | 6,245 | N/A |

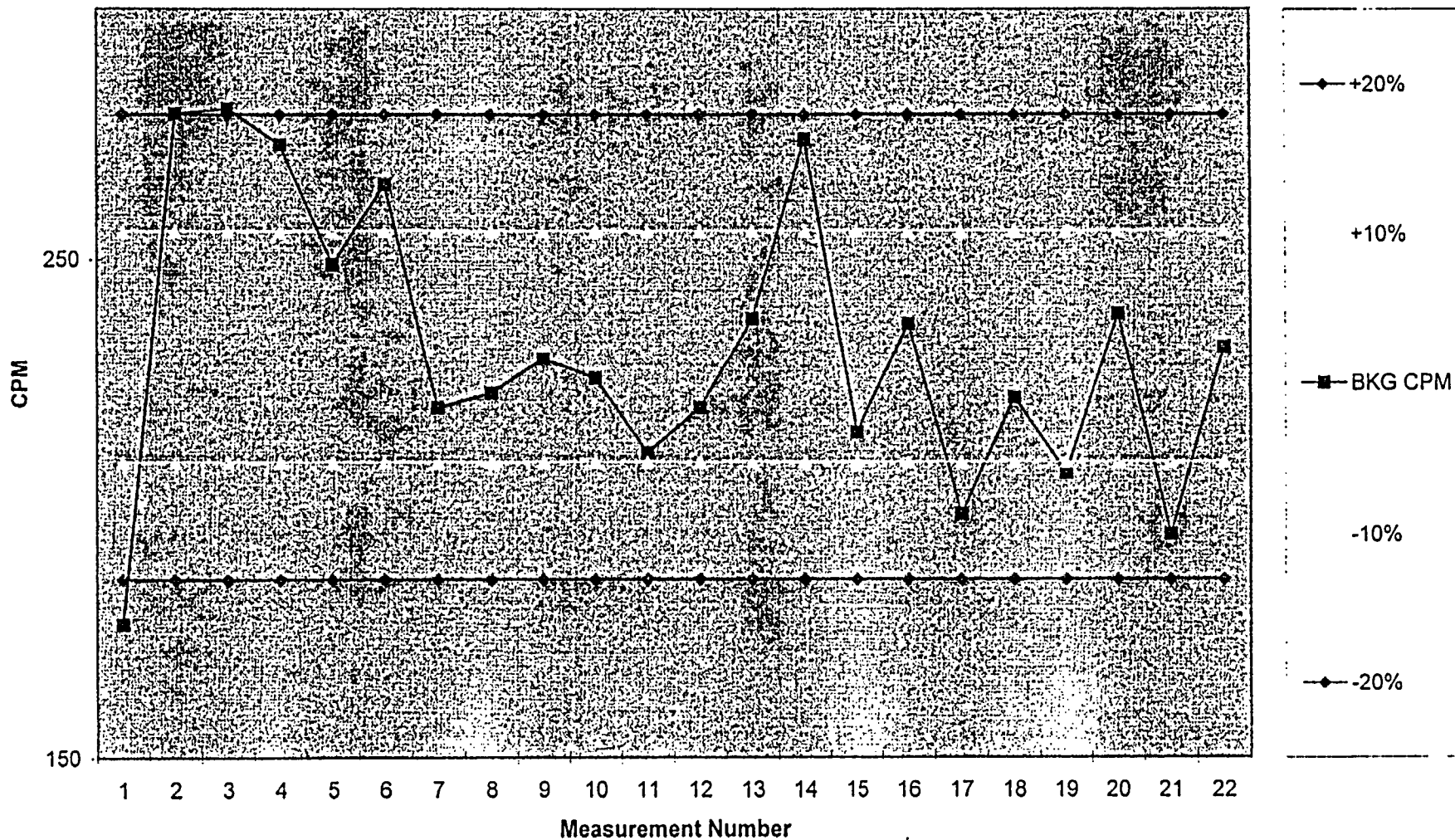
+ 10% 6,869 -10% 5,620
 + 20% 7,494 - 20% 4,996

PERFORMED BY: Alice Thompson DATE: 06/19/03
 RW WED BY: Frank Myers DATE: 06/19/03

Initial Setup Source Range 6/19/03
Instrument:L-2221 # 172035 Probe:43-68# 116719



Initial Setup Background Range 6/19/03
Instrument:L-2221 # 172035 Probe:43-68 # 116719





Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

4/10/2003

Calibration Certificate for 2221, Serial # 172035, Bar Code # , Property # SEC-5232

Date: 04/10/03

Date Last Cal. Expires: 05/03/03

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Due for Calibration

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2 SERIAL #: 132896 CAL DUE: 11/26/03

MODEL: SERIAL #: CAL DUE:

AS FOUND DATA

Geotropism: SAT AF Instrument Condition: SAT AL Instrument Condition: SAT

HIGH VOLTAGE

AS FOUND HV

AS LEFT HV

New Batteries?

AF Mechanical Zero: 0

{+/- 10% tolerance}

500 V: 501

507

Threshold ratio: 100=10mV

AL Mechanical Zero: 0

1000 V: 990

1000

AF THRESHOLD: 10.0 mV

AF HV Reading: 1701 V

1500 V: 1479

1491

AL THRESHOLD: 10.0 mV

AL HV Reading: 1725 V

RATE METER

LOG SCALE

SCALE RATE CPM AS FOUND % ERROR AS LEFT % ERROR

| SCALE | RATE CPM | AS FOUND | % ERROR | AS LEFT | % ERROR |
|-----------------------|----------|----------|---------|---------|---------|
| x.1 or x1 | 100 | 100 | 0.00% | AF | 0.00% |
| | 250 | 250 | 0.00% | AF | 0.00% |
| | 400 | 400 | 0.00% | AF | 0.00% |
| x1 or x10 | 1000 | 1000 | 0.00% | AF | 0.00% |
| | 2500 | 2500 | 0.00% | AF | 0.00% |
| x10 or x100 (x1000) | 4000 | 4000 | 0.00% | AF | 0.00% |
| | 10K | 10 | 0.00% | AF | 0.00% |
| | 25K | 25 | 0.00% | AF | 0.00% |
| x100 or x1000 (x1000) | 40K | 40 | 0.00% | AF | 0.00% |
| | 100K | 100 | 0.00% | AF | 0.00% |
| x1000 (x1000) | 250K | 250 | 0.00% | AF | 0.00% |
| | 400K | 400 | 0.00% | AF | 0.00% |
| SCALER: | | 250 | 0.00% | AF | 0.00% |

| | | | |
|----------|-------|----------|-------|
| AF 200: | 205 | % ERROR: | 2.50% |
| AF 2000: | 2050 | % ERROR: | 2.50% |
| AF 20K: | 20 K | % ERROR: | 0.00% |
| AF 200K: | 195 K | % ERROR: | 2.50% |
| AL 200: | AF | % ERROR: | 2.50% |
| AL 2000: | AF | % ERROR: | 2.50% |
| AL 20K: | AF K | % ERROR: | 0.00% |
| AL 200K: | AF K | % ERROR: | 2.50% |

Is the As Found Data Within 20% of the Set Point?

Is the As Found Data Within 20% of the Set Point?

REPRODUCIBILITY

| | | | |
|----------------------|-------|-------|-------|
| x.1 or x1 Scale: | 250 | 250 | 250 |
| x1 or x10 Scale: | 2500 | 2500 | 2500 |
| x10 or x100 Scale: | 25 K | 25 K | 25 K |
| x100 or x1000 Scale: | 250 K | 250 K | 250 K |

Audio Response: SAT
Audio Divide: SAT
Push Buttons: SAT
Lamp: SAT
Scaler/Digital: SAT

Are the Individual Counts Within 10% of the Average?

Fast / Slow Response Function Properly?

Comments

Married as a set with: Model: 43-37

Serial #: PR161368

Meter also married with 43-68 # PR116719.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

04/10/04

Performed by:

Carl Hall

Reviewed by:

[Signature]

Date:

4/10/03

Printed Name:

Carl Hall

Entered in Computer Maintenance By:

[Signature]

Date:

4/10/03



Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

4/10/2003

Calibration Certificate for 43-68, Serial # PR116719, Bar Code # ,Property # SEC-5233

Date: 04/10/03

Date Last Cal. Expires: 04/08/03

Technician: Carl Hall

Location: 9999,

Reason For Calibration: #Error

EQUIPMENT USED DURING CALIBRATION

MODEL: 2221

SERIAL #: 172035

CAL DUE 04/10/04

MODEL:

SERIAL #:

CAL DUE

NIST TRACEABLE SOURCES USED

| SOURCE | ISOTOPE | ACTIVITY | ASSAY DATE |
|---------|---------|-----------|------------|
| 4071-02 | Th-230 | 35400 dpm | 2/11/2003 |
| 4072-02 | Tc-99 | 29800 dpm | 2/6/2003 |
| 4076-02 | Sr-90 | 16600 dpm | 2/1/2003 |
| 4079-02 | Pu-239 | 29300 dpm | 2/11/2003 |

AS FOUND DATA

AF Instrument Condition: SAT

AL Instrument Condition: SAT

Efficiency from last cal.

Setpoints from last cal.: HV (Alpha): 1250 V HV (Beta): 1725 V Threshold: 10 mV Pu: 27.19 % Tc: 26.66 %

| AF Response in CPM: | Alpha | Beta | 2nd AF Response in CPM: | Alpha | Beta | Th: | Sr: |
|---------------------|-------|------|-------------------------|-------|------|---------|---------|
| Background: | 0 | 0 | (after repair) | 2 | 303 | 30.07 % | 34.19 % |
| Pu-239: | 0 | | | 6529 | | | |
| Tc-99: | | 0 | | | 7851 | | |

| AF Efficiencies: | 0.00% | 0.00% | Th-230 | Sr-90 | 22.28% | 25.33% | Th-230 | Sr-90 |
|------------------|-------|-------|--------|-------|--------|--------|--------|--------|
| Th-230 / Sr-90: | 0 | 0 | 0.00% | 0.00% | 8575 | 6194 | 24.22% | 35.49% |

Is the As Found Data Within 20% of the efficiency from the last cal.?

Reproducibility: Isotope: Sr-90 6186 6211 6183 Average: 6193.3

Are the individual counts within 10% of the average?

If the As Found data (even after repair) is within 10% of the last calibration, then the technician may N/A Plateau Data and go directly to Comments. Geometry = 1/8" from source unless otherwise specified.

Alpha Source: Th-230

PLATEAU DATA

Beta Source: Tc-99

| HV (Alpha) | Response (CPM): | | Background (CPM): | Net Eff. |
|------------|-----------------|-------|-------------------|----------|
| | A ch. | A ch. | | |
| N/A | | | | |

| HV (Beta) | Response (CPM): | | Background (CPM): | Net Eff. |
|-----------|-----------------|-------|-------------------|----------|
| | B ch. | B ch. | | |
| N/A | | | | |

BACKGROUND

| Alpha HV | Pu-239 | Th-230 | Alpha | Beta | Beta HV | Tc-99 | Sr-90 |
|----------|--------|--------|-------|------|---------|-------|-------|
| CPM | CPM | CPM | CPM | CPM | CPM | CPM | CPM |

AL Efficiencies: [] [] [] [] [] [] [] []

Comments:

Married as a set with: Model: 2221

Serial #: 172035

Replaced damaged mylar. Calibrated to new sources.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration: 04/10/04

Performed by: [Signature]

Reviewed by: [Signature] Date: 4/10/03

Printed Name: Carl Hall

Entered in Computer Inventory By: [Signature] Date: 4/10/03

Instrument Set 14

UVAP DAILY FIELD SOURCE CHECK LOG - FIELD INSTRUMENT

Source Type: Pipe cutout Source Activity: Unknown

Instrument: L 2221 S/N: 172035 Voltage: 900 Cal. Due: 4/8/03

Detector: 491-30 S/N: X339 Threshold: 500 Cal. Due: n/a 10/2/03

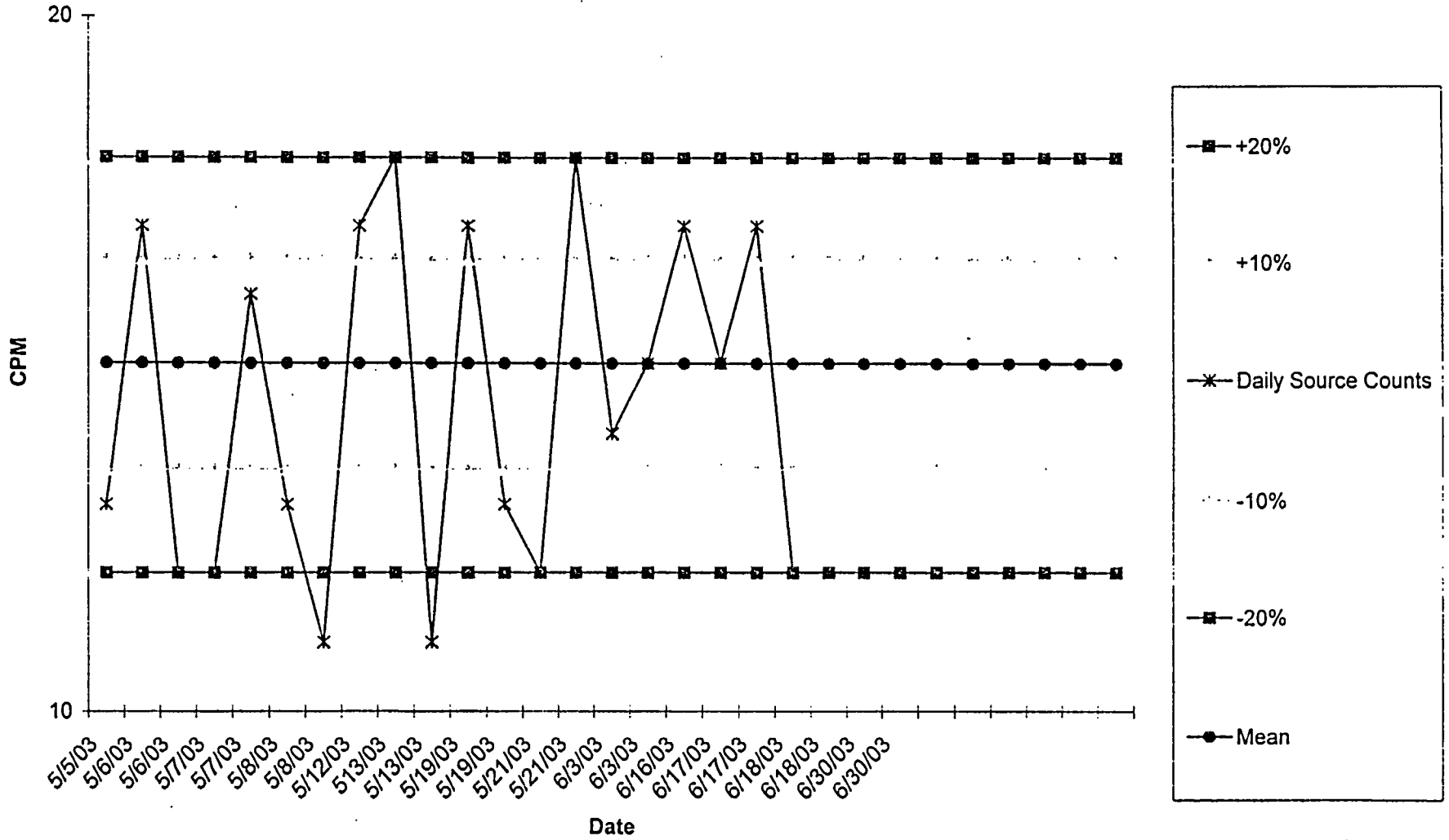
| Date | Time | Source Check Gross DPM (A) | Bkg. cpm (B) | Net | Eff. | HV | Batt. | Spkr. | Phys. | By |
|---------|-------|-------------------------------|-----------------|-----|------|-----|-------|-------|-------|----|
| | | | | DPM | | | | | | |
| 5/5/03 | 9:10 | 44 | 31 | 13 | | 900 | 5.4 | ok | ok | JS |
| 5/6/03 | 11:00 | 50 | 33 | 17 | | 900 | 5.3 | ok | ok | JS |
| 5/6/03 | 17:20 | 45 | 33 | 12 | | 900 | 5.2 | ok | ok | JS |
| 5/7/03 | 7:35 | 43 | 32 | 12 | | 900 | 5.3 | ok | ok | JS |
| 5/7/03 | 17:20 | 45 | 29 | 16 | | 901 | 5.2 | ok | ok | JS |
| 5/8/03 | 8:20 | 46 | 33 | 13 | | 900 | 5.2 | ok | ok | JS |
| 5/8/03 | 17:25 | 47 | 36 | 11 | | 901 | 5.2 | ok | ok | JS |
| 5/12/03 | 17:15 | 45 | 28 | 17 | | 900 | 5.1 | ok | ok | JS |
| 5/13/03 | 8:50 | 41 | 23 | 18 | | 900 | 5.7 | ok | ok | JS |
| 5/13/03 | 17:15 | 39 | 28 | 11 | | 900 | 5.7 | ok | ok | JS |
| 5/19/03 | 11:45 | 48 | 31 | 17 | | 900 | 5.8 | ok | ok | BL |
| 5/19/03 | 16:41 | 45 | 32 | 13 | | 900 | 5.8 | ok | ok | BL |
| 5/21/03 | 9:45 | 46 | 34 | 12 | | 900 | 5.8 | ok | ok | BM |
| 5/21/03 | 14:20 | 47 | 29 | 21 | | 900 | 5.8 | ok | ok | BL |
| 6/3/03 | 14:41 | 45 | 31 | 14 | | 900 | 5.8 | ok | ok | BL |
| 6/3/03 | 17:14 | 40 | 25 | 15 | | 901 | 5.8 | ok | ok | BL |
| 6/16/03 | 13:12 | 47 | 30 | 17 | | 900 | 5.7 | ok | ok | JS |
| 6/17/03 | 08:05 | 42 | 27 | 15 | | 900 | 5.7 | ok | ok | JS |
| 6/17/03 | 17:10 | 46 | 29 | 17 | | 900 | 5.6 | ok | ok | JS |
| 6/18/03 | 08:00 | 32 | 20 | 12 | | 900 | 5.6 | ok | ok | JS |
| 6/18/03 | 09:50 | 34 | 22 | 12 | | 899 | 5.6 | ok | ok | JS |
| 6/30/03 | 10:41 | 28 | 16 | 12 | | 899 | 5.4 | ok | ok | BL |
| 6/30/03 | 15:30 | 28 | 16 | 12 | | 900 | 5.3 | ok | ok | BL |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Remarks _____

+20% 18
-20% 12

Daily Source

Daily Source Range
Instrument:L-2221 # 172035 Probe: 491-30 #x339





Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

Page 1 of 1

4/10/2003

Calibration Certificate for 2221, Serial # 172035, Bar Code # ,Property # SEC-5232

Date: 04/10/03

Date Last Cal. Expires: 05/03/03

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Due for Calibration

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2 SERIAL #: 132896 CAL DUE: 11/26/03

MODEL: SERIAL #: CAL DUE:

AS FOUND DATA

Geotropism: SAT AF Instrument Condition: SAT AL Instrument Condition: SAT

HIGH VOLTAGE

AS FOUND HV

AS LEFT HV

New Batteries?

AF Mechanical Zero: 0

(+/- 10% tolerance)

| | | | | |
|---------|------|------|---------------------------|-----------------------|
| 500 V: | 501 | 507 | Threshold ratio: 100=10mV | AL Mechanical Zero: 0 |
| 1000 V: | 990 | 1000 | AF THRESHOLD: 10.0 mV | AF HV Reading: 1701 V |
| 1500 V: | 1479 | 1491 | AL THRESHOLD: 10.0 mV | AL HV Reading: 1725 V |

RATE METER

LOG SCALE

| SCALE | RATE CPM | AS FOUND | % ERROR | AS LEFT | % ERROR |
|-----------------------|----------|----------|---------|---------|---------|
| x.1 or x1 | 100 | 100 | 0.00% | AF | 0.00% |
| | 250 | 250 | 0.00% | AF | 0.00% |
| | 400 | 400 | 0.00% | AF | 0.00% |
| x1 or x10 | 1000 | 1000 | 0.00% | AF | 0.00% |
| | 2500 | 2500 | 0.00% | AF | 0.00% |
| | 4000 | 4000 | 0.00% | AF | 0.00% |
| x10 or x100 (x1000) | 10K | 10 | 0.00% | AF | 0.00% |
| | 25K | 25 | 0.00% | AF | 0.00% |
| | 40K | 40 | 0.00% | AF | 0.00% |
| x100 or x1000 (x1000) | 100K | 100 | 0.00% | AF | 0.00% |
| | 250K | 250 | 0.00% | AF | 0.00% |
| | 400K | 400 | 0.00% | AF | 0.00% |
| SCALER: | 250 | 250 | 0.00% | AF | 0.00% |

| | | | |
|----------|-------|----------|-------|
| AF 200: | 205 | % ERROR: | 2.50% |
| AF 2000: | 2050 | % ERROR: | 2.50% |
| AF 20K: | 20 K | % ERROR: | 0.00% |
| AF 200K: | 195 K | % ERROR: | 2.50% |
| AL 200: | AF | % ERROR: | 2.50% |
| AL 2000: | AF | % ERROR: | 2.50% |
| AL 20K: | AF K | % ERROR: | 0.00% |
| AL 200K: | AF K | % ERROR: | 2.50% |

Is the As Found Data Within 20% of the Set Point?

Is the As Found Data Within 20% of the Set Point?

REPRODUCIBILITY

| | | | |
|----------------------|-------|-------|-------|
| x.1 or x1 Scale: | 250 | 250 | 250 |
| x1 or x10 Scale: | 2500 | 2500 | 2500 |
| x10 or x100 Scale: | 25 K | 25 K | 25 K |
| x100 or x1000 Scale: | 250 K | 250 K | 250 K |

Audio Response: SAT
 Audio Divide: SAT
 Push Buttons: SAT
 Lamp: SAT
 Scaler/Digital: SAT

Are the Individual Counts Within 10% of the Average?

Fast / Slow Response Function Properly?

Comments

Married as a set with: Model: 43-37

Serial #: PR161368

Meter also married with 43-68 # PR116719.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

04/10/04

Performed by:

Reviewed by:

Date:

4/10/03

Printed Name: Carl Hall

Entered in Computer Maintenance By:

Date:

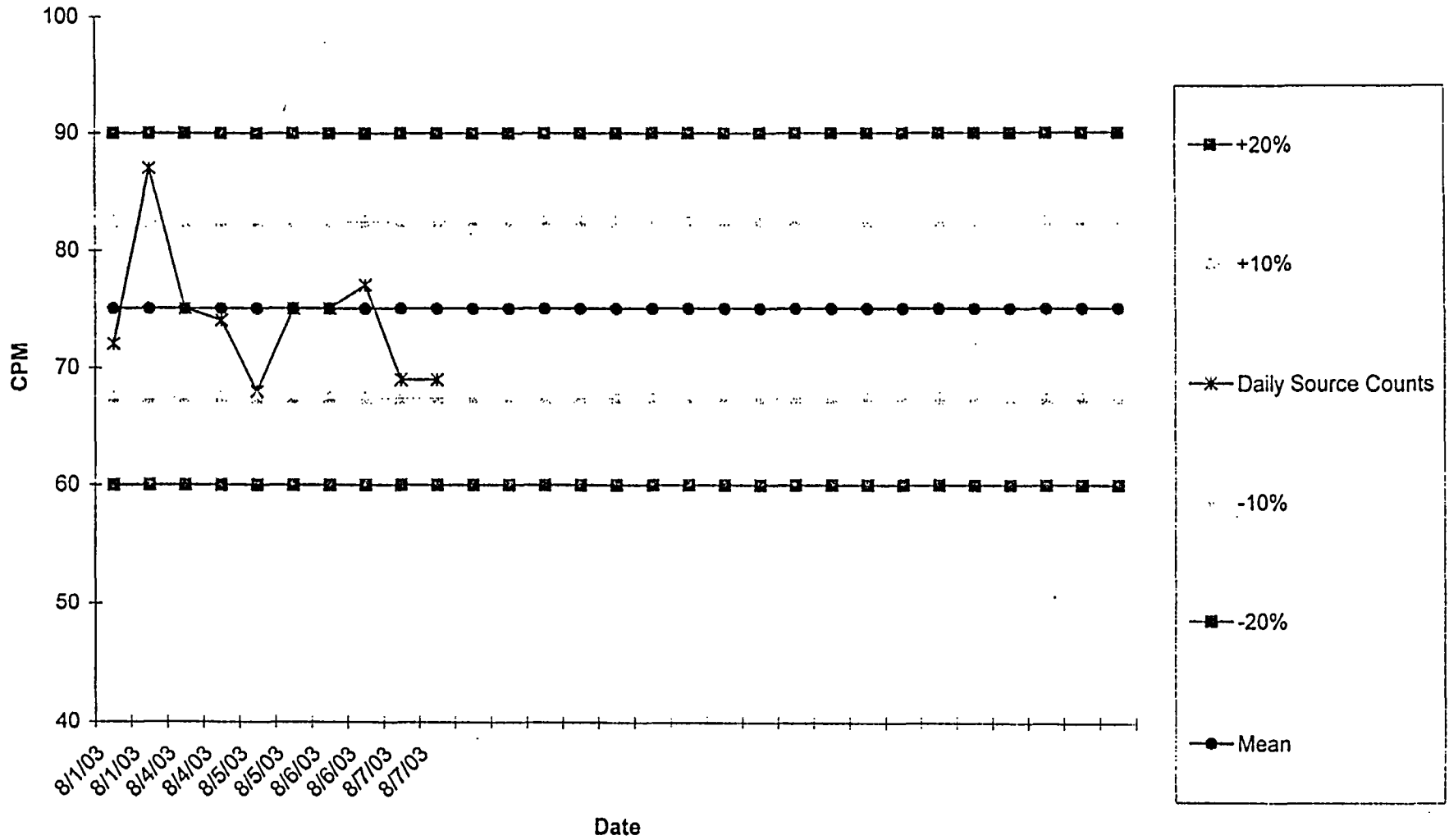
4/10/03

**Piping Probe X339's
Calibration
Is described in
Section 4.3 of this Report**

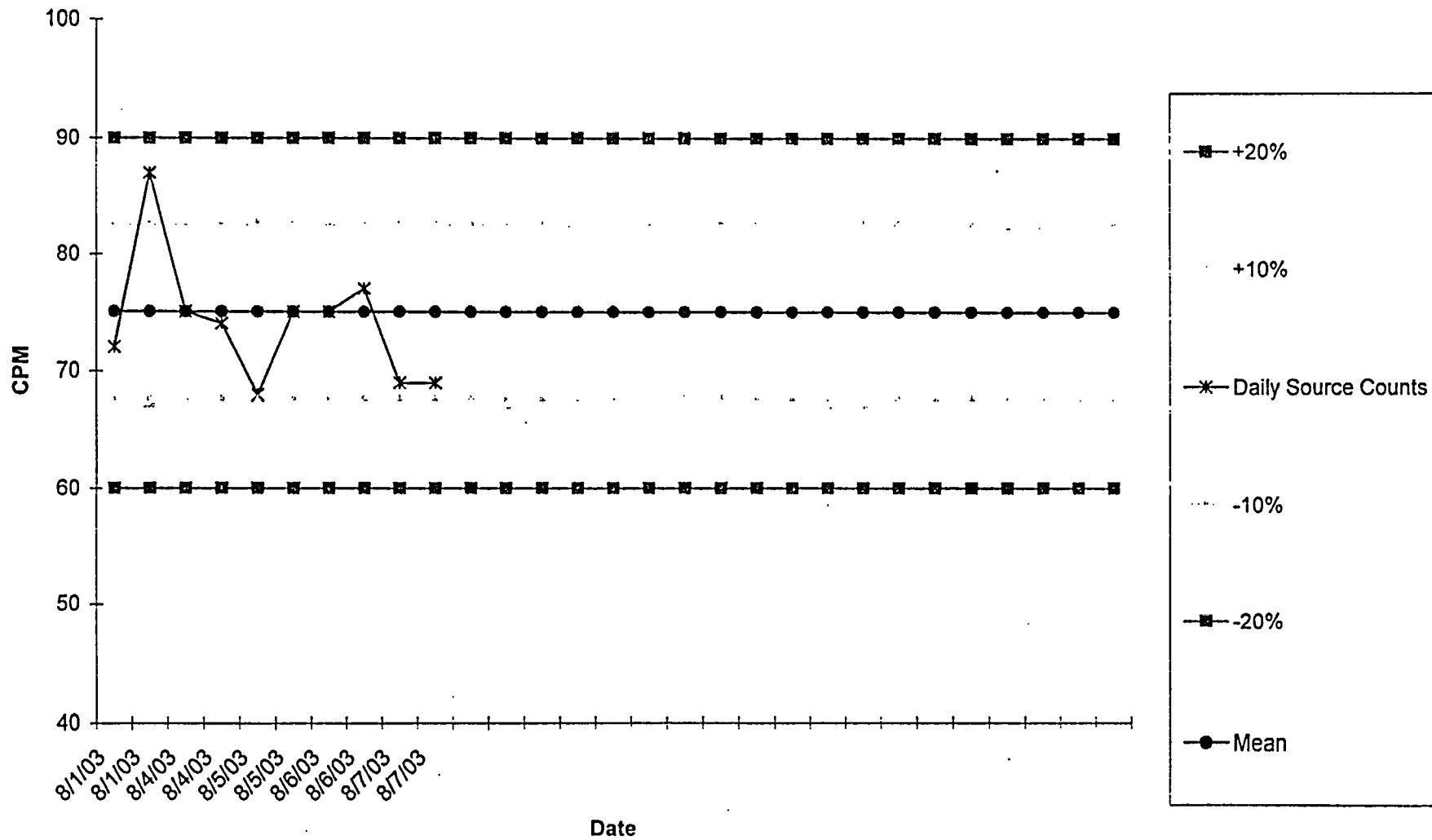
Instrument Set 15

Daily Source

Daily Source Range
Instrument:L-2221 # 152184 Probe: 491-30 # x339



Daily Source Range
Instrument: L-2221 # 152184 Probe: 491-30 # x339



UVAP
INITIAL SETUP / ACCEPTABLE RANGE DATA SHEET

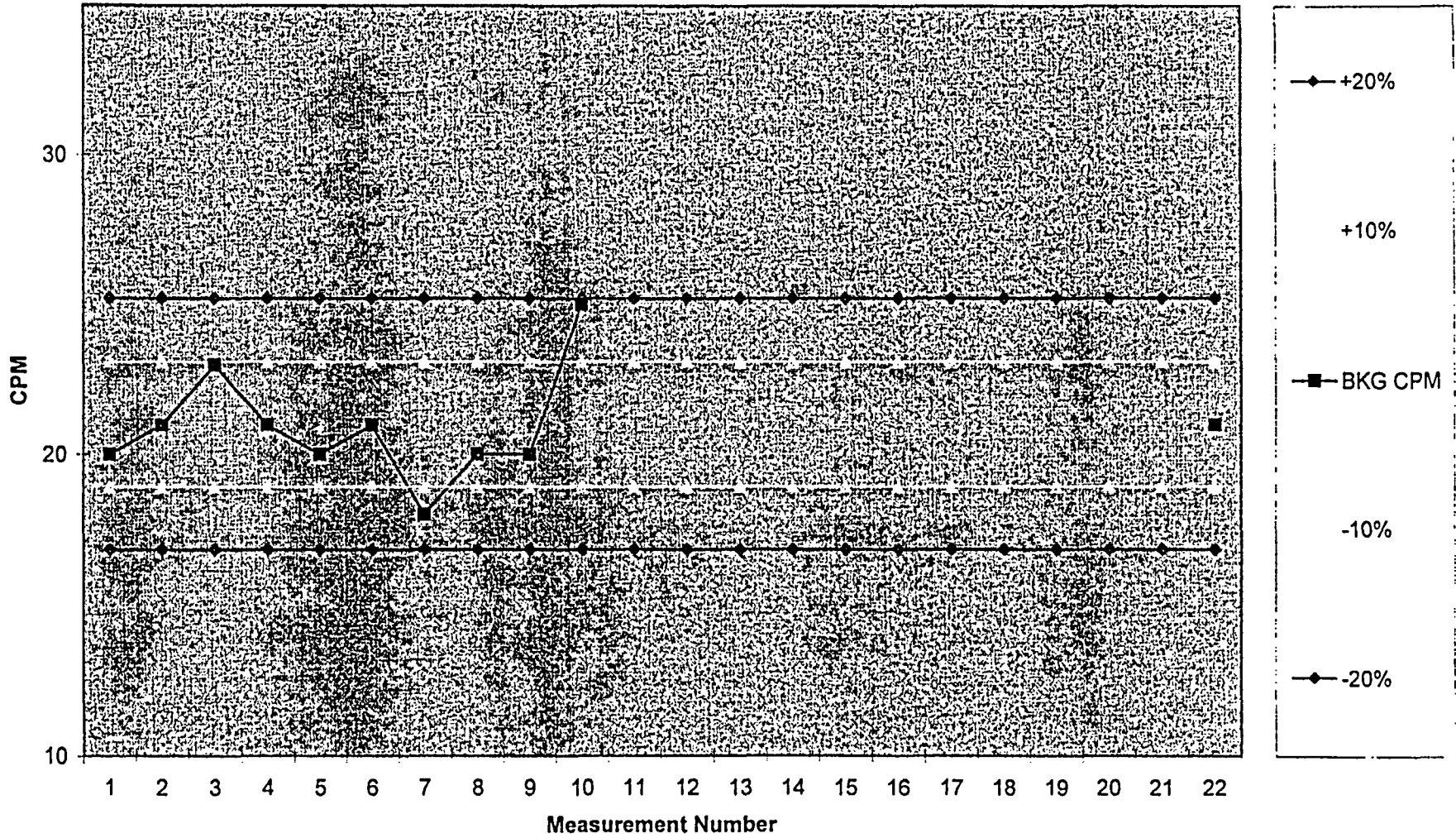
INSTRUMENT: L 2221 SERIAL #: 152184 CAL DUE: 3/5/04
 PROBE: 491-30 SERIAL #: X339 CAL DUE: N/A
 SOURCE: Cs 137 SERIAL #: 99Cs250 Setup Date: 7/31/03
 ACTIVITY: 8.95uCi
 BKG COUNT TIME: 1 SOURCE COUNT TIME: 1
 CALIBRATED OPERATING VOLTAGE: 900 THRESHOLD VALUE: 500

| COUNT # | SOURCE CPM | BKG CPM | NET SOURCE CTS | EFFICIENCY (D) |
|----------|------------|---------|----------------|----------------|
| 1 | 100 | 20 | 80 | n/a |
| 2 | 110 | 21 | 89 | n/a |
| 3 | 86 | 23 | 63 | n/a |
| 4 | 94 | 21 | 73 | n/a |
| 5 | 94 | 20 | 74 | n/a |
| 6 | 90 | 21 | 69 | n/a |
| 7 | 105 | 18 | 87 | n/a |
| 8 | 87 | 20 | 67 | n/a |
| 9 | 104 | 20 | 84 | n/a |
| 10 | 108 | 25 | 81 | n/a |
| 11 | | | | |
| 12 | | | | |
| 13 | | | | |
| 14 | | | | |
| 15 | | | | |
| 16 | | | | |
| 17 | | | | |
| 18 | | | | |
| 19 | | | | |
| 20 | | | | |
| 21 | | | | |
| Averages | 80 | 21 | 75 | |

+ 10% 83 -10% 68
 + 20% 90 - 20% 60

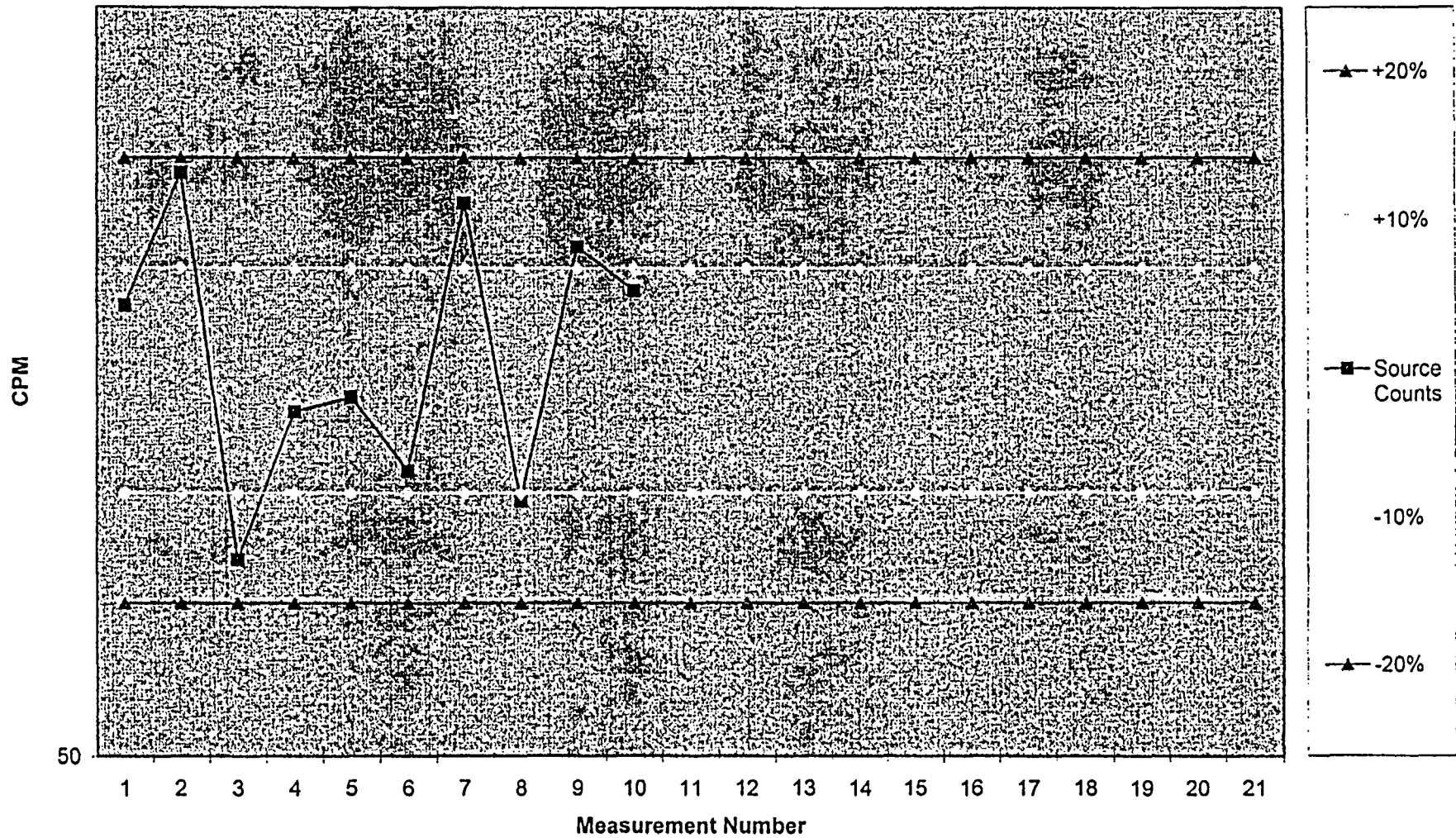
PERFORMED BY: Jason Strand DATE: 08/01/03
 REVIEWED BY: Frank Myers DATE: 08/01/03

Initial Setup Background Range 8/1/03
Instrument:L-2221 # 152184 Probe: 491-30 # X339



Source

Initial Setup Source Range 8/1/03
Instrument:L-2221 # 152184 Probe:491-30 # X339





Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

3/5/2003

Calibration Certificate for 2221, Serial # 152184, Bar Code # , Property # SEC-5108

Date: 03/05/03

Date Last Cal. Expires: 09/05/03

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2 SERIAL #: 132896 CAL DUE: 11/26/03
 MODEL: SERIAL #: CAL DUE:

AS FOUND DATA

Geotropism: SAT AF Instrument Condition: SAT AL Instrument Condition: SAT

| HIGH VOLTAGE | AS FOUND HV | AS LEFT HV | <input type="checkbox"/> New Batteries? | AF Mechanical Zero: | AL Mechanical Zero: |
|-----------------------------------|-------------|------------|---|----------------------|---------------------|
| <u>(+/- 10% tolerance)</u> 500 V: | 501 | AF | Threshold ratio: 100=10mV | 0 | 0 |
| 1000 V: | 1001 | AF | AF THRESHOLD: 9.3 mV | AF HV Reading: 797 V | |
| 1500 V: | 1494 | AF | AL THRESHOLD: 10.0 mV | AL HV Reading: 800 V | |

RATE METER

| SCALE | RATE CPM | AS FOUND | % ERROR | AS LEFT | % ERROR |
|-----------------------|----------|----------|---------|---------|---------|
| x.1 or x1 | 100 | 100 | 0.00% | AF | 0.00% |
| | 250 | 250 | 0.00% | AF | 0.00% |
| | 400 | 395 | 1.25% | AF | 1.25% |
| x1 or x10 | 1000 | 1000 | 0.00% | AF | 0.00% |
| | 2500 | 2500 | 0.00% | AF | 0.00% |
| | 4000 | 3950 | 1.25% | AF | 1.25% |
| x10 or x100 (x1000) | 10K | 10 | 0.00% | AF | 0.00% |
| | 25K | 25 | 0.00% | AF | 0.00% |
| | 40K | 39.5 | 1.25% | AF | 1.25% |
| x100 or x1000 (x1000) | 100K | 100 | 0.00% | AF | 0.00% |
| | 250K | 250 | 0.00% | AF | 0.00% |
| | 400K | 395 | 1.25% | AF | 1.25% |
| SCALER: | | 250 | 0.00% | AF | 0.00% |

LOG SCALE

| | | | |
|----------|-------|----------|--------|
| AF 200: | 200 | % ERROR: | 0.00% |
| AF 2000: | 2000 | % ERROR: | 0.00% |
| AF 20K: | 19 K | % ERROR: | 5.00% |
| AF 200K: | 180 K | % ERROR: | 10.00% |
| AL 200: | AF | % ERROR: | 0.00% |
| AL 2000: | AF | % ERROR: | 0.00% |
| AL 20K: | AF K | % ERROR: | 5.00% |
| AL 200K: | AF K | % ERROR: | 10.00% |

Is the As Found Data Within 20% of the Set Point?

Is the As Found Data Within 20% of the Set Point?

REPRODUCIBILITY

| | | | |
|----------------------|-------|-------|-------|
| x.1 or x1 Scale: | 250 | 250 | 250 |
| x1 or x10 Scale: | 2500 | 2500 | 2500 |
| x10 or x100 Scale: | 25 K | 25 K | 25 K |
| x100 or x1000 Scale: | 250 K | 250 K | 250 K |

Audio Response: SAT
 Audio Divide: SAT
 Push Buttons: SAT
 Lamp: SAT
 Scaler/Digital: SAT

Are the Individual Counts Within 10% of the Average?

Fast / Slow Response Function Properly?

Comments

Married as a set with: Model: 44-2

Serial #: PR145722

Meter returned due to probe problem.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

03/05/04

Performed by: Carl Hall
Printed Name: Carl Hall

Reviewed by: [Signature] Date: 3/6/03

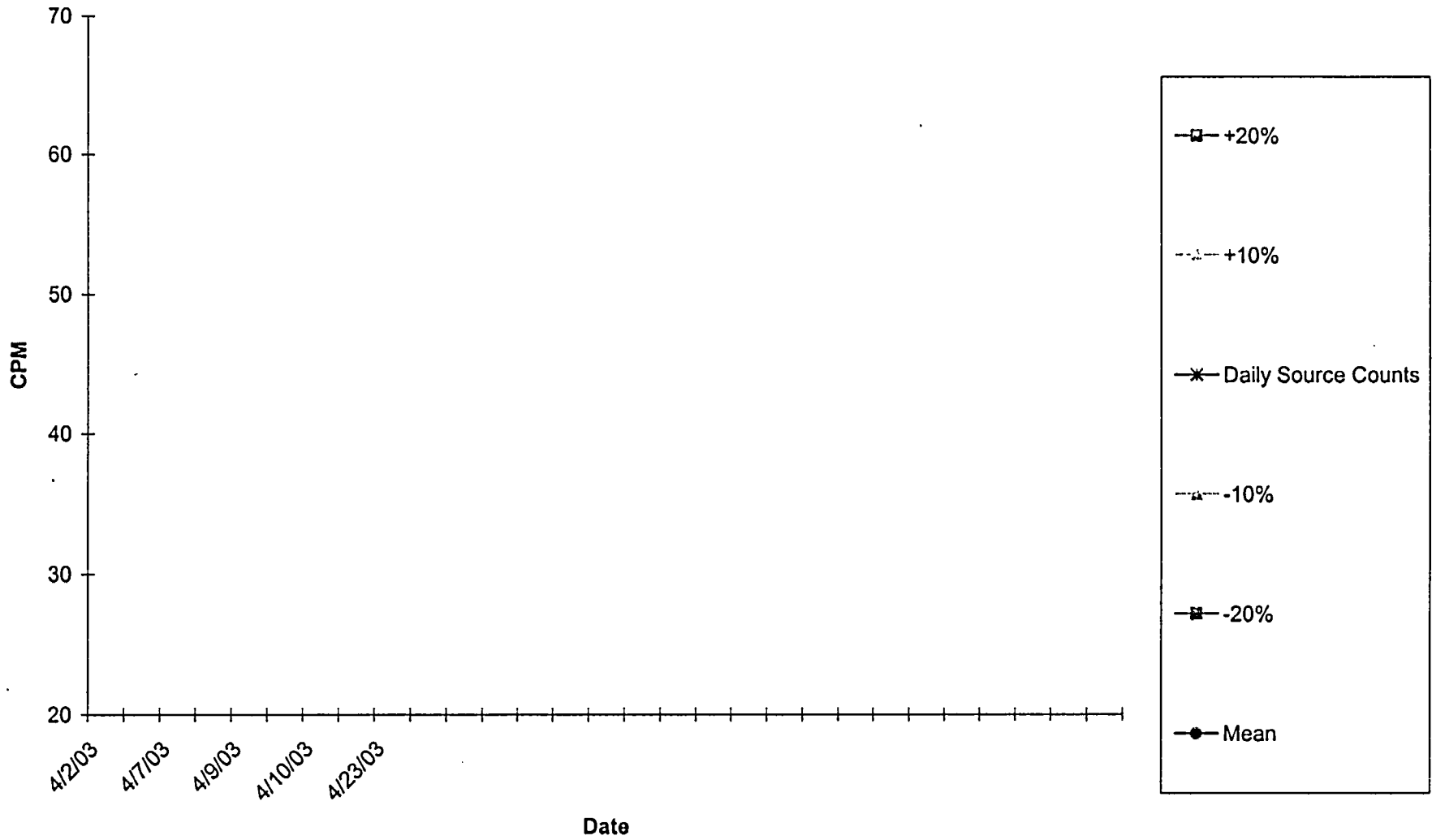
Entered in Computer Maintenance By: [Signature] Date: 3/6/03

**Piping Probe X339's
Calibration
Is described in
Section 4.3 of this Report**

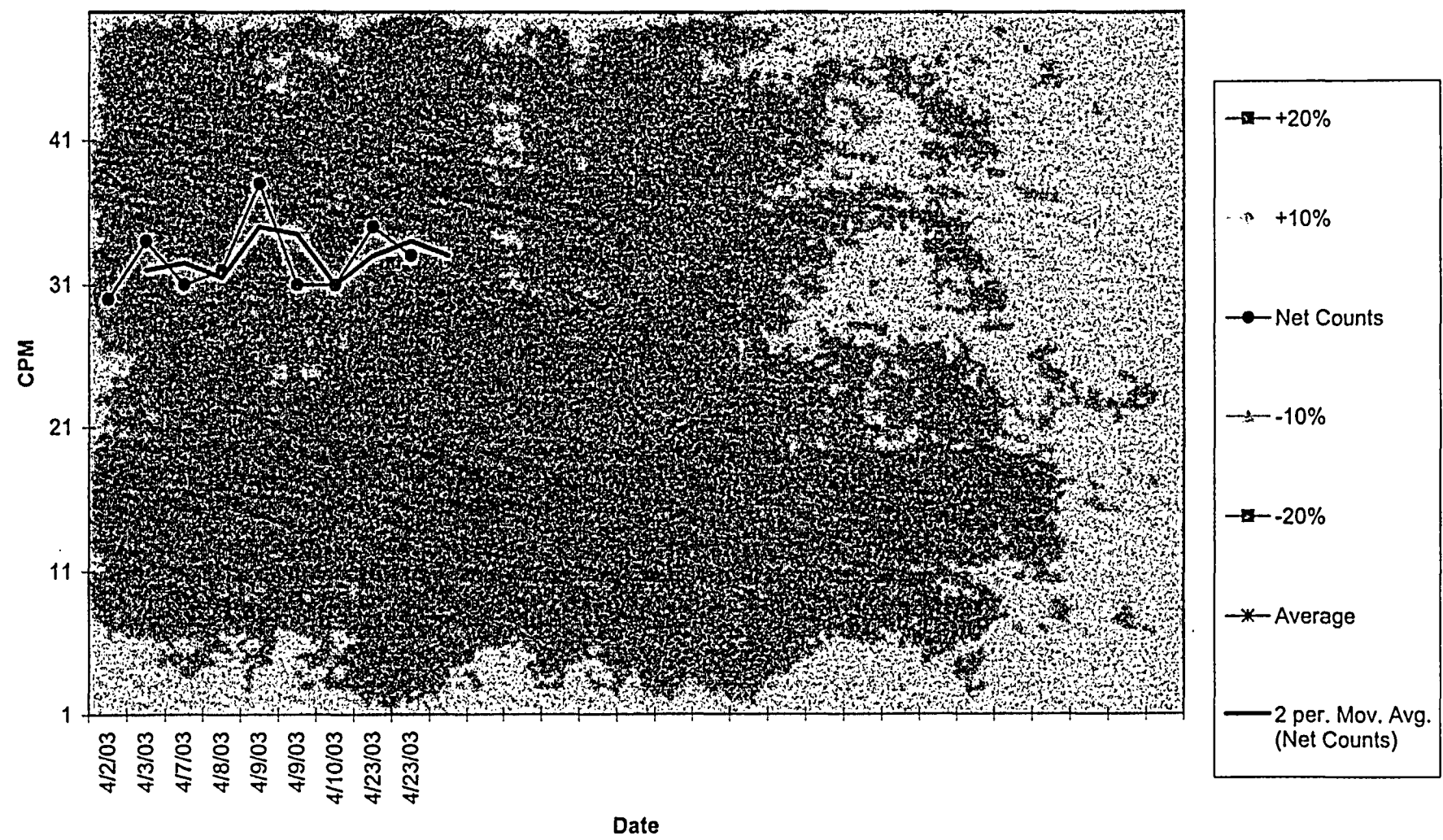
Instrument Set 16

Daily Source

Daily Source Range
Instrument:L-2221 # 157006 Probe: L-44-10 # 150870



Daily Background Range
Instrument:L-2221 # 157006 Probe: L-44-10 # 150870



**UVAP
INITIAL SETUP / ACCEPTABLE RANGE DATA SHEET**

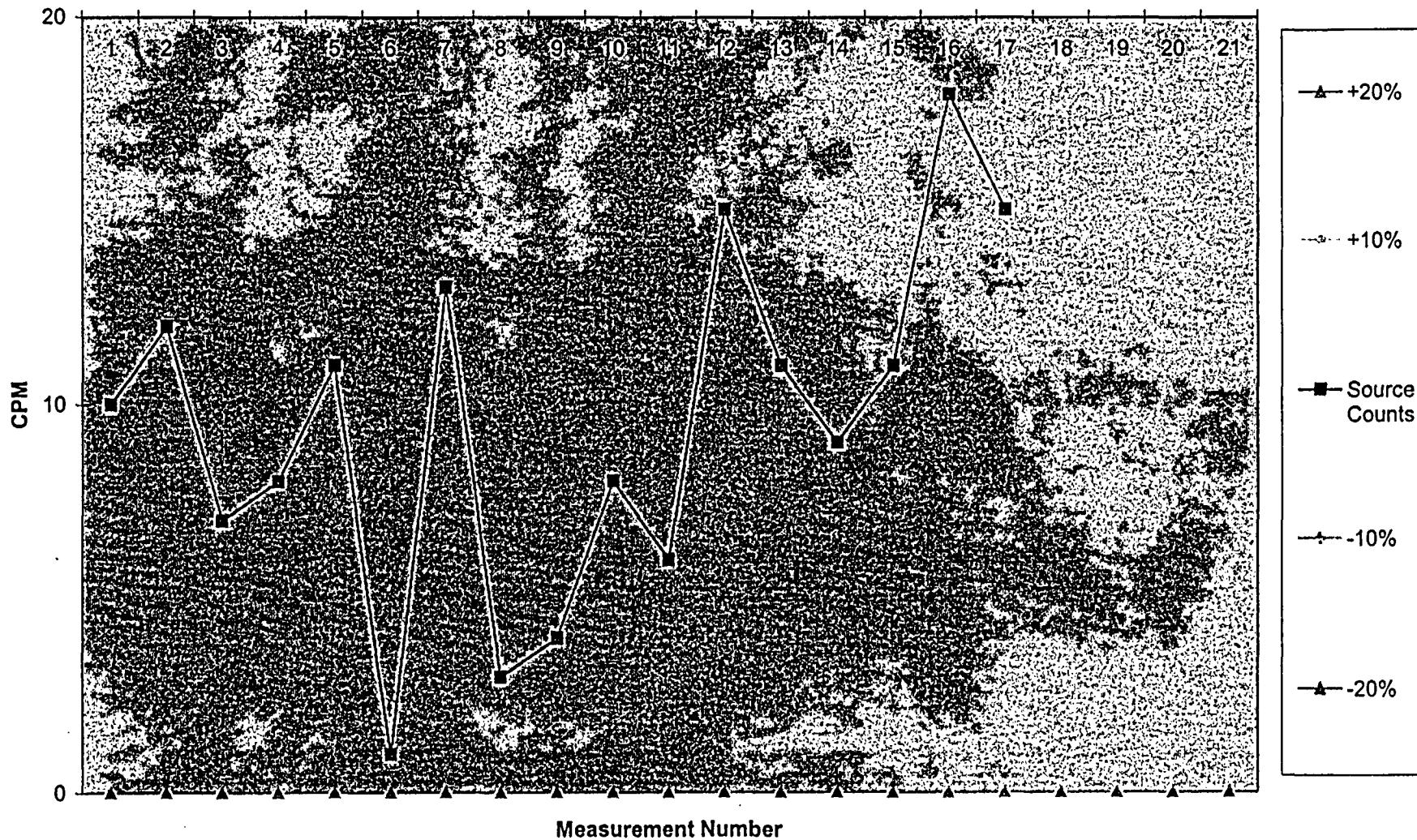
INSTRUMENT: L 2221 SERIAL #: 184010 CAL DUE: 03/24/2004
 PROBE: 491-30 SERIAL #: X339 CAL DUE: N/A
 SOURCE: PIPE CUTOUT SERIAL #: N/A Setup Date: 04/24/2003
 ACTIVITY: UNKNOWN
 BKG COUNT TIME: 1 SOURCE COUNT TIME: 1
 CALIBRATED OPERATING VOLTAGE: 900 THRESHOLD VALUE: 500

| COUNT # | SOURCE CPM | BKG CPM | NET SOURCE CTS | EFFICIENCY (D) |
|----------|------------|---------|----------------|----------------|
| 1 | 47 | 37 | 10 | n/a |
| 2 | 45 | 33 | 12 | n/a |
| 3 | 41 | 34 | 7 | n/a |
| 4 | 42 | 34 | 8 | n/a |
| 5 | 50 | 39 | 11 | n/a |
| 6 | 43 | 42 | 1 | n/a |
| 7 | 52 | 39 | 13 | n/a |
| 8 | 39 | 36 | 3 | n/a |
| 9 | 39 | 35 | 4 | n/a |
| 10 | 46 | 38 | 8 | n/a |
| 11 | 39 | 33 | 6 | n/a |
| 12 | 46 | 31 | 15 | n/a |
| 13 | 42 | 31 | 11 | n/a |
| 14 | 43 | 34 | 9 | n/a |
| 15 | 46 | 35 | 11 | n/a |
| 16 | 51 | 33 | 18 | n/a |
| 17 | 49 | 34 | 15 | n/a |
| 18 | | | | |
| 19 | | | | |
| 20 | | | | |
| 21 | | | | |
| Averages | | | | |

+ 10% 0 -10% 0
 + 20% 0 - 20% 0

PERFORMED BY: Brad Myers DATE: 04/24/03
 REVIEWED BY: Frank Myers DATE: 04/24/03

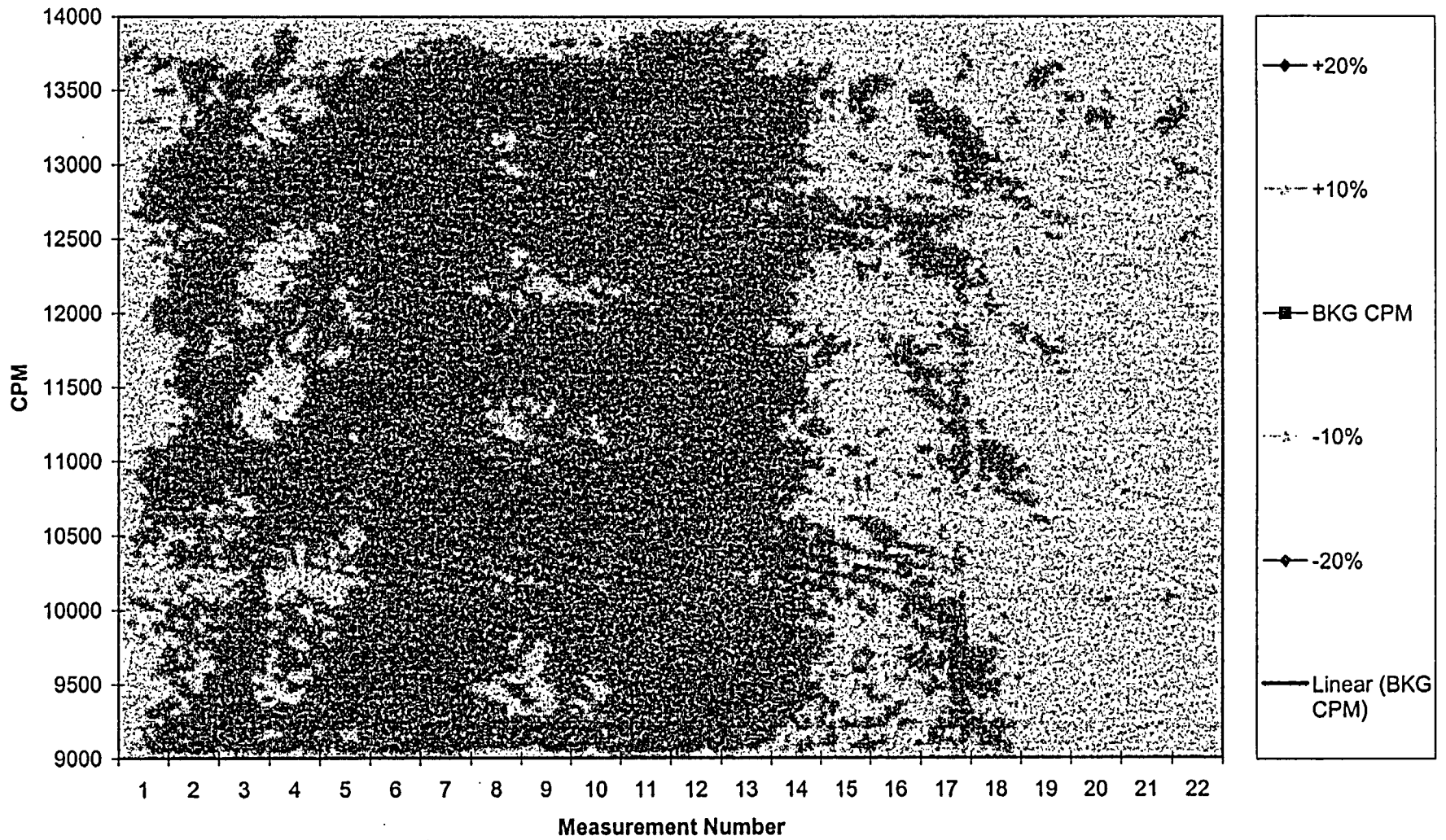
Initial Setup Source Range 4/24/0
Instrument:L-2221 # 184010 Probe: 491-30 # X339



Initial BKG

3/24/0311/12/01

Instrument:L-2221 # 184010 Probe: 491-30# X339





Safety and Ecology Corporation
 2800 Solway Road
 Knoxville, TN 37931
 Calibration Certificate

COPY page 1 of 1
 3/18/2003

Calibration Certificate for 2221, Serial # 184010, Bar Code # , Property # SEC-5167

Date: 03/18/03 Date Last Cal. Expires: 11/07/03 Technician: Carl Hall
 Location: 1211, Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2 SERIAL #: 132896 CAL DUE: 11/26/03
 MODEL: SERIAL #: CAL DUE:

AS FOUND DATA Geotroism: SAT AF Instrument Condition: SAT AL Instrument Condition: SAT
HIGH VOLTAGE AS FOUND HV AS LEFT HV New Batteries? AF Mechanical Zero: 0
 (+/- 10% tolerance) 500 V: 496 506 Threshold ratio: 100=10mV AL Mechanical Zero: 0
 1000 V: 989 1000 AF THRESHOLD: 10.0 mV AF HV Reading: 1030 V
 1500 V: 1484 1496 AL THRESHOLD: 10.0 mV AL HV Reading: 1125 V

| RATE METER | | | | | |
|---------------|----------|----------|---------|---------|---------|
| SCALE | RATE CPM | AS FOUND | % ERROR | AS LEFT | % ERROR |
| x.1 or x1 | 100 | 100 | 0.00% | AF | 0.00% |
| | 250 | 250 | 0.00% | AF | 0.00% |
| | 400 | 400 | 0.00% | AF | 0.00% |
| x1 or x10 | 1000 | 1000 | 0.00% | AF | 0.00% |
| | 2500 | 2500 | 0.00% | AF | 0.00% |
| | 4000 | 4000 | 0.00% | AF | 0.00% |
| x10 or x100 | 10K | 10 | 0.00% | AF | 0.00% |
| | 25K | 25 | 0.00% | AF | 0.00% |
| | 40K | 40 | 0.00% | AF | 0.00% |
| x100 or x1000 | 100K | 100 | 0.00% | AF | 0.00% |
| | 250K | 250 | 0.00% | AF | 0.00% |
| | 400K | 400 | 0.00% | AF | 0.00% |
| SCALER: | 250 | 250 | 0.00% | AF | 0.00% |

| LOG SCALE | | | |
|-----------|-------|----------|-------|
| AF 200: | 200 | % ERROR: | 0.00% |
| AF 2000: | 2000 | % ERROR: | 0.00% |
| AF 20K: | 20 K | % ERROR: | 0.00% |
| AF 200K: | 200 K | % ERROR: | 0.00% |
| AL 200: | AF | % ERROR: | 0.00% |
| AL 2000: | AF | % ERROR: | 0.00% |
| AL 20K: | AF K | % ERROR: | 0.00% |
| AL 200K: | AF K | % ERROR: | 0.00% |

Is the As Found Data Within 20% of the Set Point?

Is the As Found Data Within 20% of the Set Point?

| REPRODUCIBILITY | | | |
|----------------------|-------|-------|-------|
| x.1 or x1 Scale: | 250 | 250 | 250 |
| x1 or x10 Scale: | 2500 | 2500 | 2500 |
| x10 or x100 Scale: | 25 K | 25 K | 25 K |
| x100 or x1000 Scale: | 250 K | 250 K | 250 K |

Audio Response: SAT
 Audio Divide: SAT
 Push Buttons: SAT
 Lamp: SAT
 Scaler/Digital: SAT

Are the Individual Counts Within 10% of the Average?

Fast / Slow Response Function Properly?

Comments Married as a set with: Model: 44-10 Serial #: PR184003
 Calibrated to a new probe.

Does Instrument Meet Final Acceptance Criteria? Calibration Sticker Attached?

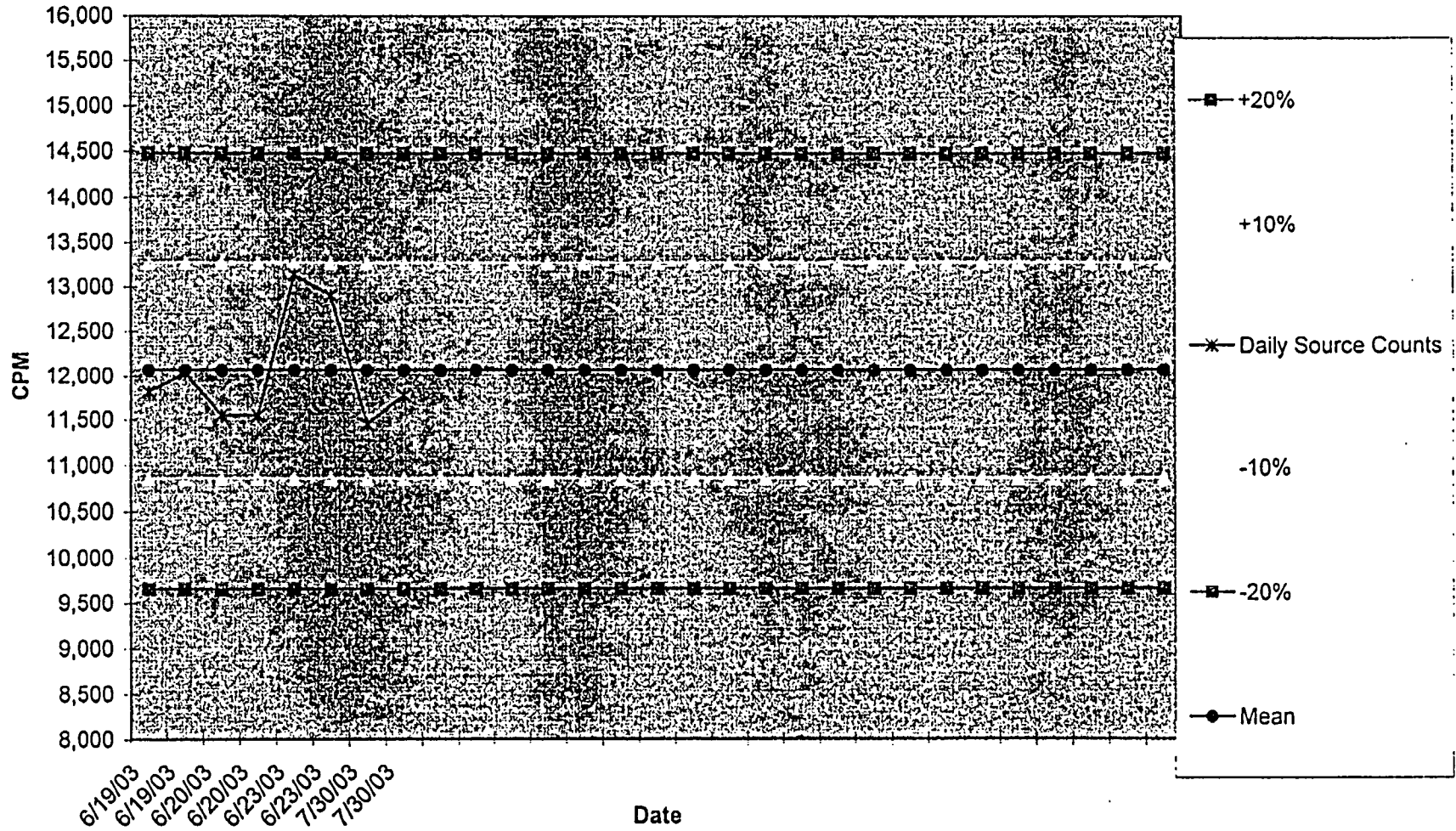
Date Instrument is Due For Next Calibration: 11/07/03

Performed by: Carl Hall Reviewed by: [Signature] Date: 3/19/03
 Printed Name: Carl Hall
 Entered in Computer Maintenance By: [Signature] Date: 3/18/03

**Piping Probe X339's
Calibration
Is described in
Section 4.3 of this Report**

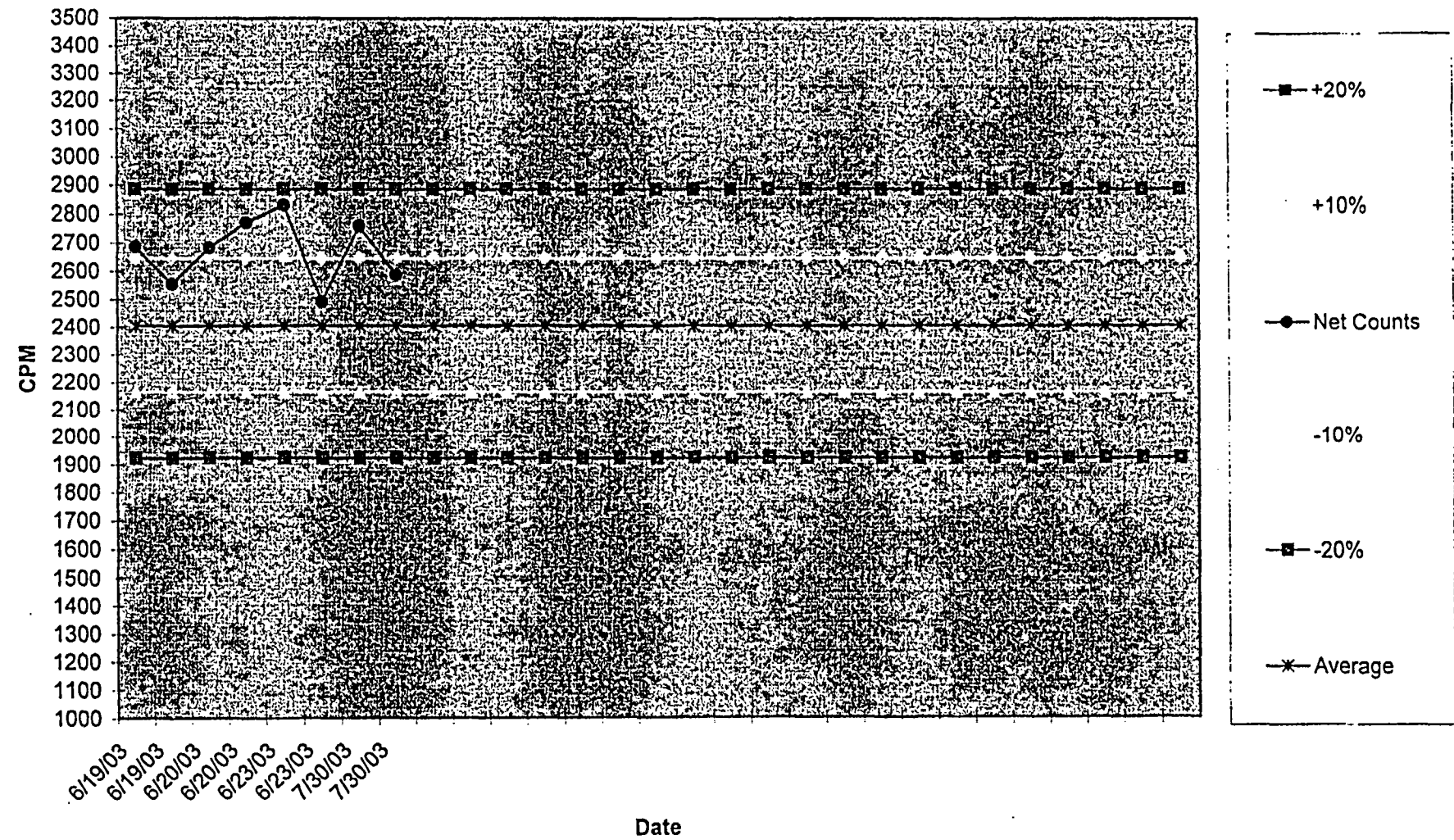
Instrument Set 17

Daily Source Range
Instrument:L-2221 # 152184 Probe: L-44-02 # 145722



Daily Background Range

Instrument: L-2221 # 152184 Probe: L-44-028 # 145722



UVAP
INITIAL SETUP / ACCEPTABLE RANGE DATA SHEET

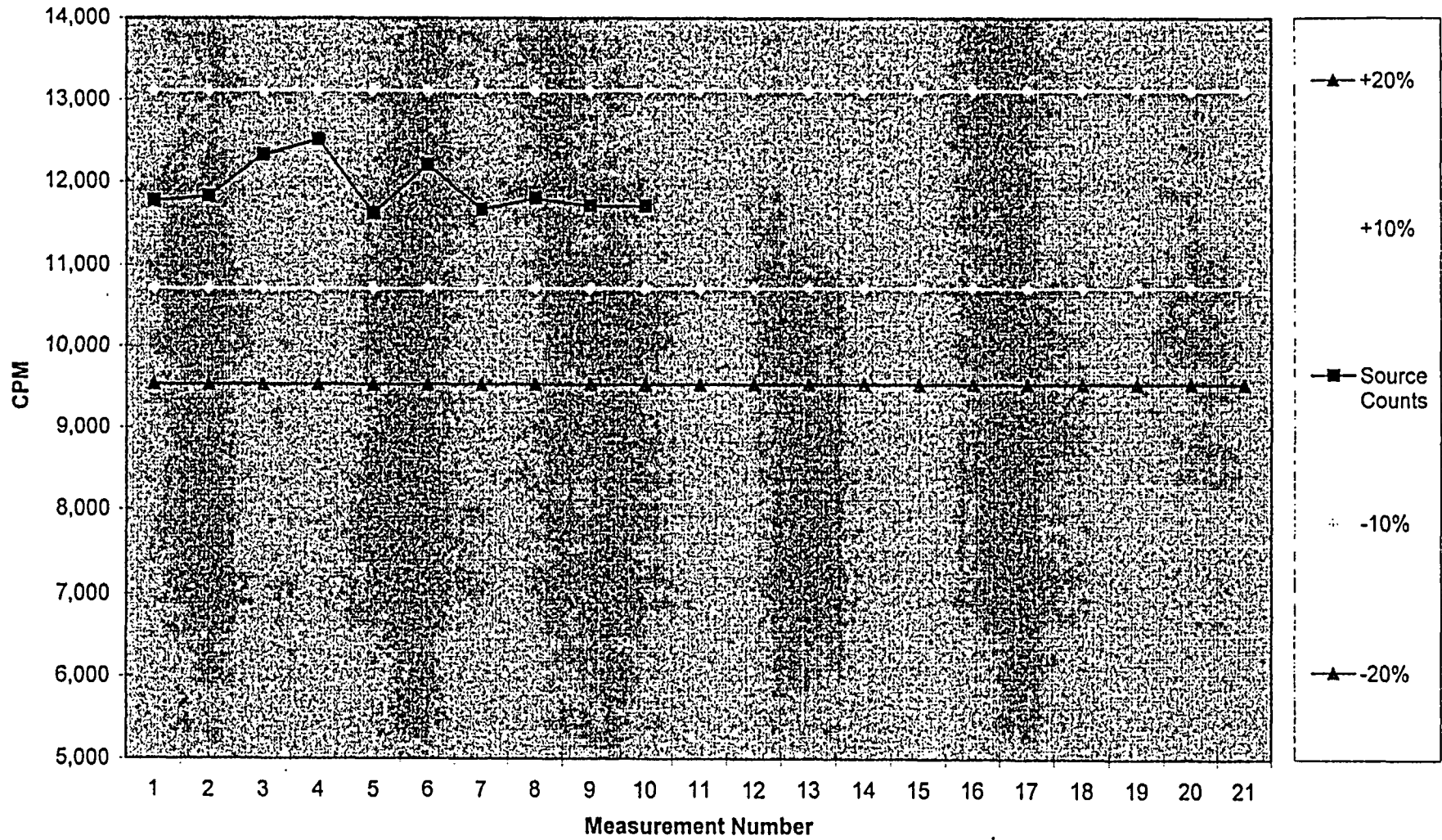
INSTRUMENT: L 2221 SERIAL #: 152184 CAL DUE: 3/5/04
 PROBE: 44-2 SERIAL #: 145722 CAL DUE: 3/5/04
 SOURCE: Cs137 SERIAL #: _____ Setup Date: 6/19/03
 ACTIVITY: 8.95 uCi
 BKG COUNT TIME: 1 minute SOURCE COUNT TIME: 1 minute
 CALIBRATED OPERATING VOLTAGE: 800 THRESHOLD VALUE: 100

| COUNT # | SOURCE CPM | BKG CPM | NET SOURCE CTS | EFFICIENCY (D) |
|----------|------------|---------|----------------|----------------|
| 1 | 14,408 | 2636 | 11,772 | N/A |
| 2 | 14,514 | 2683 | 11,831 | N/A |
| 3 | 15,068 | 2744 | 12,324 | N/A |
| 4 | 15,171 | 2659 | 12,512 | N/A |
| 5 | 14,271 | 2644 | 11,627 | N/A |
| 6 | 14,851 | 2646 | 12,205 | N/A |
| 7 | 14,346 | 2678 | 11,668 | N/A |
| 8 | 14,405 | 2603 | 11,802 | N/A |
| 9 | 14,352 | 2635 | 11,717 | N/A |
| 10 | 14,347 | 2634 | 11,713 | N/A |
| 11 | | | | N/A |
| 12 | | | | N/A |
| 13 | | | | N/A |
| 14 | | | | N/A |
| 15 | | | | N/A |
| 16 | | | | N/A |
| 17 | | | | N/A |
| 18 | | | | N/A |
| 19 | | | | N/A |
| 20 | | | | N/A |
| 21 | | | | N/A |
| Averages | 14,573 | 2,656 | 11,917 | N/A |

+ 10% 13,109 -10% 10,725
 + 20% 14,301 - 20% 9,534

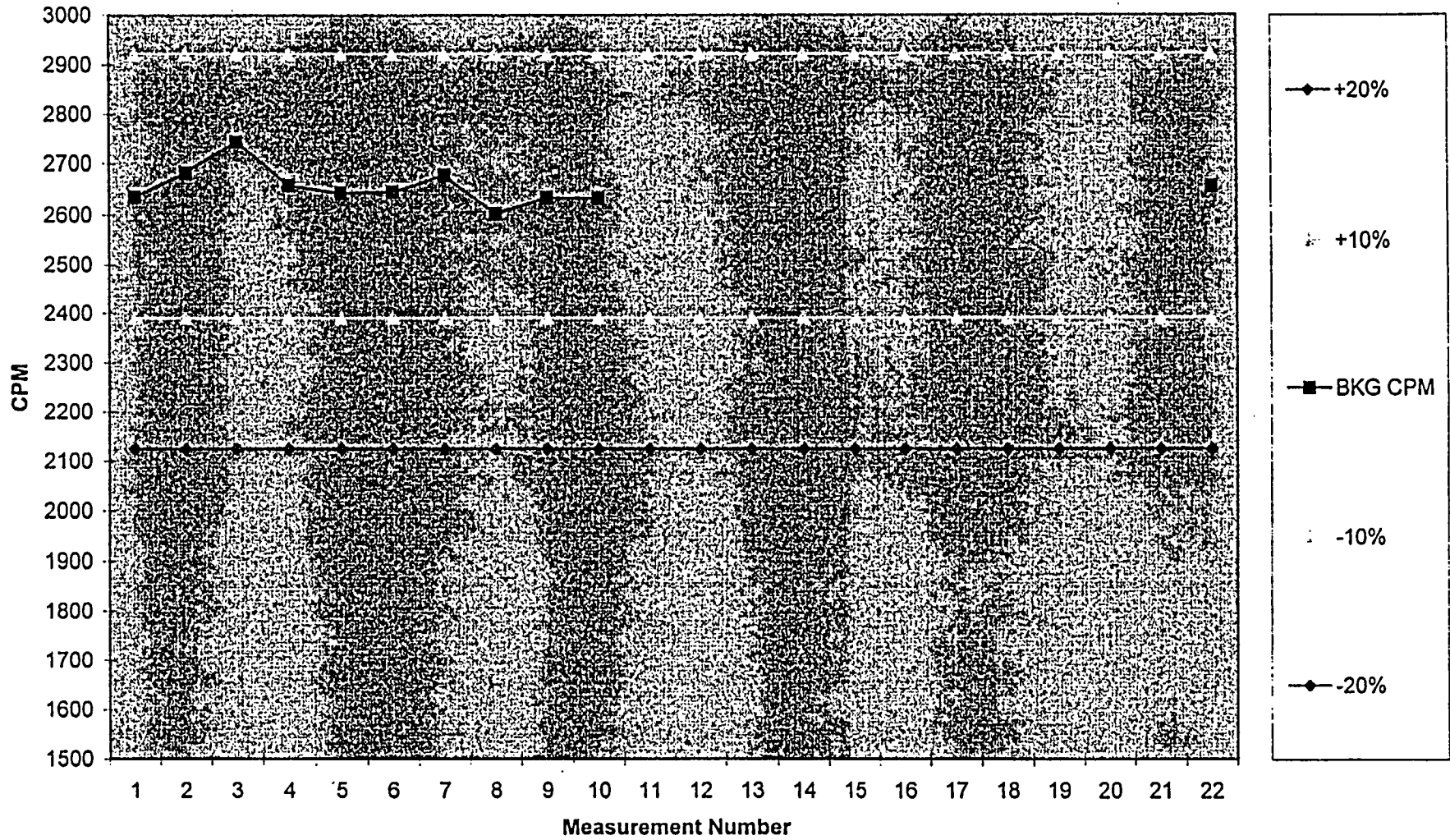
PERFORMED BY: Jason Strand DATE: 06/19/03
 REVIEWED BY: Frank Myers DATE: 06/19/03

Initial Setup Source Range 6/19/03
Instrument:L-2221 # 172035 Probe:43-68# 116719



In. 3KG

Initial Setup Background Range 6/19/03
Instrument:L-2221 # 172035 Probe:43-68 # 116719





Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

3/5/2003

Calibration Certificate for 2221, Serial # 152184, Bar Code # ,Property # SEC-5108

Date: 03/05/03

Date Last Cal. Expires: 09/05/03

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2

SERIAL #: 132896

CAL DUE: 11/26/03

MODEL:

SERIAL #:

CAL DUE:

AS FOUND DATA

Geotropism: SAT

AF Instrument Condition: SAT

AL Instrument Condition: SAT

HIGH VOLTAGE

AS FOUND HV

AS LEFT HV

New Batteries?

AF Mechanical Zero: 0

(+/- 10% tolerance)

500 V: 501

AF

Threshold ratio: 100=10mV

AL Mechanical Zero: 0

1000 V: 1001

AF

AF THRESHOLD: 9.3 mV

AF HV Reading: 797 V

1500 V: 1494

AF

AL THRESHOLD: 10.0 mV

AL HV Reading: 800 V

RATE METER

LOG SCALE

| SCALE | RATE CPM | AS FOUND | % ERROR | AS LEFT | % ERROR |
|-----------------------|----------|----------|---------|---------|---------|
| x.1 or x1 | 100 | 100 | 0.00% | AF | 0.00% |
| | 250 | 250 | 0.00% | AF | 0.00% |
| | 400 | 395 | 1.25% | AF | 1.25% |
| x1 or x10 | 1000 | 1000 | 0.00% | AF | 0.00% |
| | 2500 | 2500 | 0.00% | AF | 0.00% |
| | 4000 | 3950 | 1.25% | AF | 1.25% |
| x10 or x100 (x1000) | 10K | 10 | 0.00% | AF | 0.00% |
| | 25K | 25 | 0.00% | AF | 0.00% |
| | 40K | 39.5 | 1.25% | AF | 1.25% |
| x100 or x1000 (x1000) | 100K | 100 | 0.00% | AF | 0.00% |
| | 250K | 250 | 0.00% | AF | 0.00% |
| | 400K | 395 | 1.25% | AF | 1.25% |
| SCALER: | | 250 | 0.00% | AF | 0.00% |

| | | | |
|----------|-------|----------|--------|
| AF 200: | 200 | % ERROR: | 0.00% |
| AF 2000: | 2000 | % ERROR: | 0.00% |
| AF 20K: | 19 K | % ERROR: | 5.00% |
| AF 200K: | 180 K | % ERROR: | 10.00% |
| AL 200: | AF | % ERROR: | 0.00% |
| AL 2000: | AF | % ERROR: | 0.00% |
| AL 20K: | AF K | % ERROR: | 5.00% |
| AL 200K: | AF K | % ERROR: | 10.00% |

Is the As Found Data Within 20% of the Set Point?

Is the As Found Data Within 20% of the Set Point?

REPRODUCIBILITY

| | | | |
|----------------------|-------|-------|-------|
| x.1 or x1 Scale: | 250 | 250 | 250 |
| x1 or x10 Scale: | 2500 | 2500 | 2500 |
| x10 or x100 Scale: | 25 K | 25 K | 25 K |
| x100 or x1000 Scale: | 250 K | 250 K | 250 K |

Audio Response: SAT
 Audio Divide: SAT
 Push Buttons: SAT
 Lamp: SAT
 Scaler/Digital: SAT

Are the Individual Counts Within 10% of the Average?

Fast / Slow Response Function Properly?

Comments

Married as a set with: Model: 44-2

Serial #: PR145722

Meter returned due to probe problem.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

03/05/04

Performed by:

[Signature]

Reviewed by:

[Signature]

Date:

3/6/03

Printed Name:

Carl Hall

Entered in Computer Maintenance By:

[Signature]

Date:

3/6/03



Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

Page 1 of 1

3/6/2003

Calibration Certificate for 44-2, Serial # PR145722, Bar Code # , Property # SEC-5409 5110

Date: 03/05/03 Date Last Cal. Expires: 09/05/03 Technician: Carl Hall
Location: 9999 Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 2221 SERIAL #: 152184 CAL DUE: 03/05/04
MODEL: SERIAL #: CAL DUE:

NIST TRACEABLE SOURCES USED

| SOURCE | ISOTOPE | ACTIVITY | ASSAY DATE |
|--------------|---------|----------|------------|
| 99CS250-0288 | Cs-137 | 8.8 uCi | 3/18/1999 |

AS FOUND DATA

AF Instrument Condition: SAT

AL Instrument Condition: SAT

Efficiency from Last Cal.: 0.15 % HV From Last Calibration: 800 V Calibration Threshold: 10 mV

| | HV | Heel Count | Center Count | Toe Count | Background Count | Uniformity | Probe Efficiency |
|-----------|-------|------------|--------------|-----------|------------------|------------|------------------|
| AS FOUND: | 800 V | | 28416 | | 953 | % Cs-137 | |
| AS LEFT: | AF V | | | | | % Cs-137 | |

Is the As Found Efficiency Within 20% of the efficiency from the last cal.?

Reproducibility: Isotope: Cs-137 28208 28500 28497 Average: 28402

Are the individual counts within 10% of the average?

If As Found Efficiency (even after repair) is within 10% of the last calibration and uniformity is <10%, the technician may N/A the Plateau Data and proceed to Comments. Geometry = Nat. probes are 4 1/2" from source. All other probes are in contact with surface unless otherwise specified.

PLATEAU AND SET POINT DATA (CPM)

| High Voltage | Source Response | Background | HV | HEEL | CENTER | TOE | Background | Uniformity | Efficiency |
|--------------|-----------------|------------|----|------|--------|-----|------------|------------|------------|
| N/A | | | V | | | | | | % Cs-137 |

Comments:

Married as a set with: Model: 2221

Serial #: 152184

No problem found.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration: 03/05/04

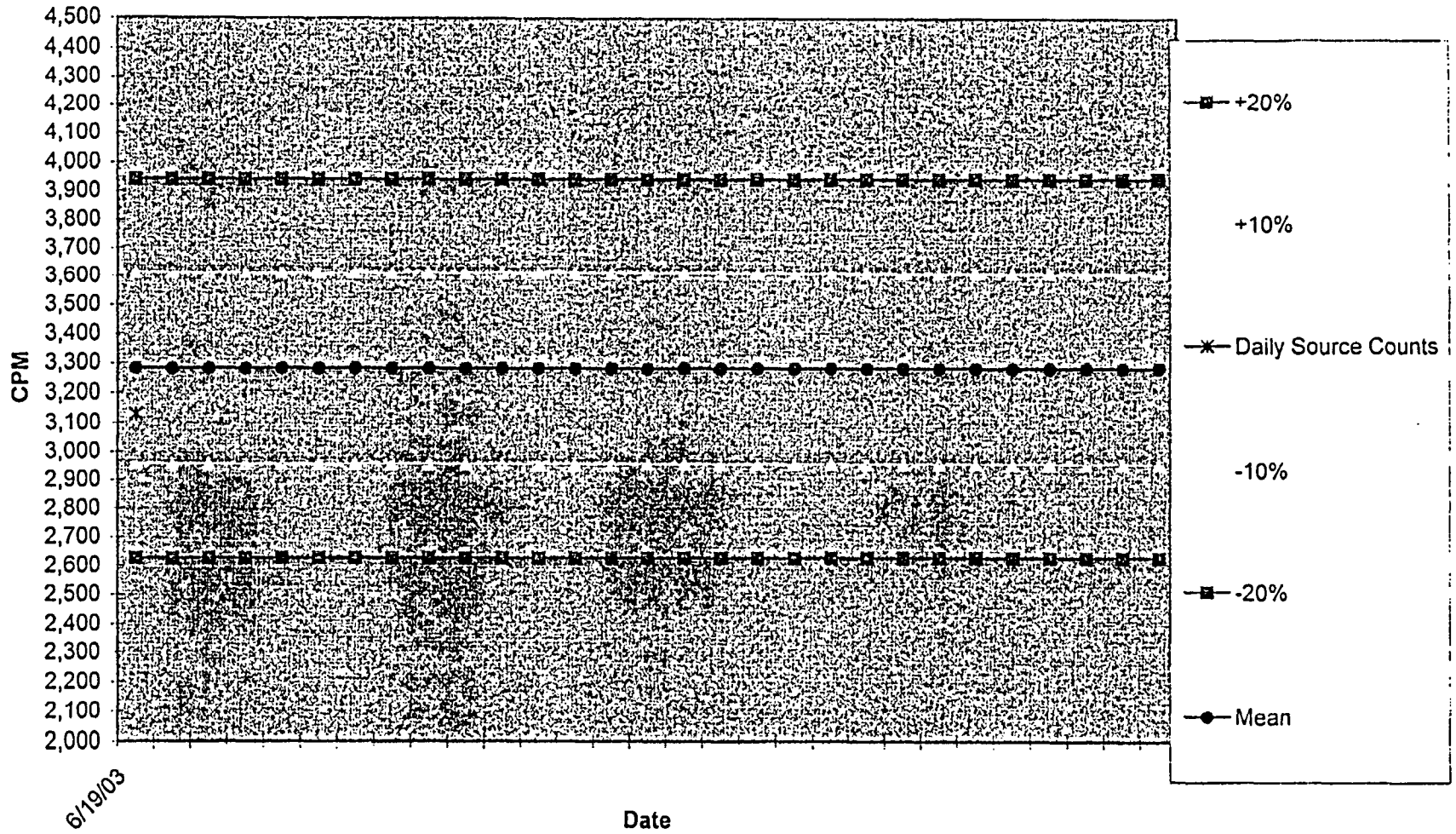
Performed by: [Signature] Reviewed by: [Signature] Date: 3/6/03

Printed Name: Carl Hall

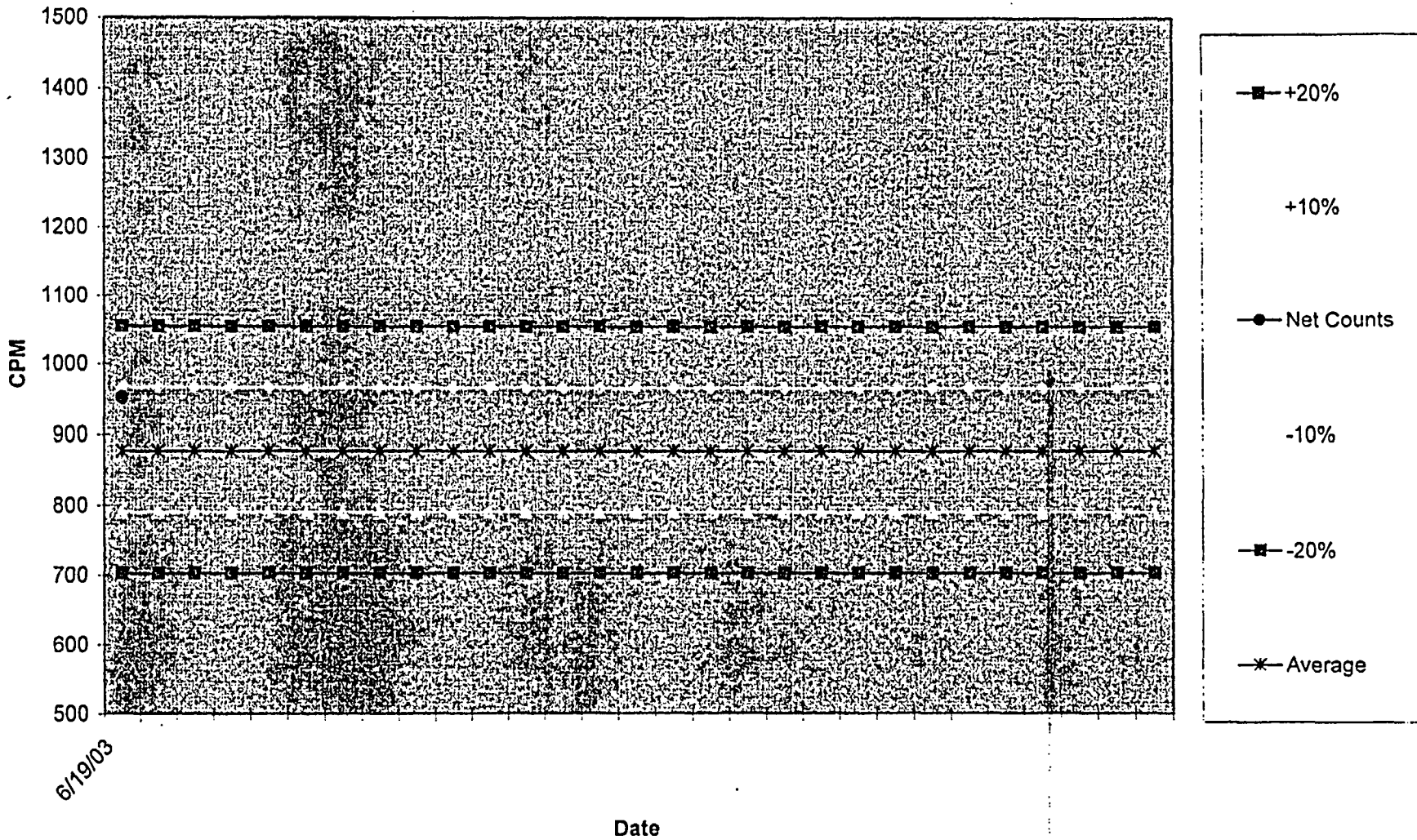
Entered in Computer Inventory By: [Signature] Date: 3/6/03

Instrument Set 18

Daily Source Range
Instrument: L-2221 # 152184 Probe: L-44-62 # 183679



Daily Background Range
Instrument:L-2221 # 152184 Probe: L-44-62 # 183679



UVAP
INITIAL SETUP / ACCEPTABLE RANGE DATA SHEET

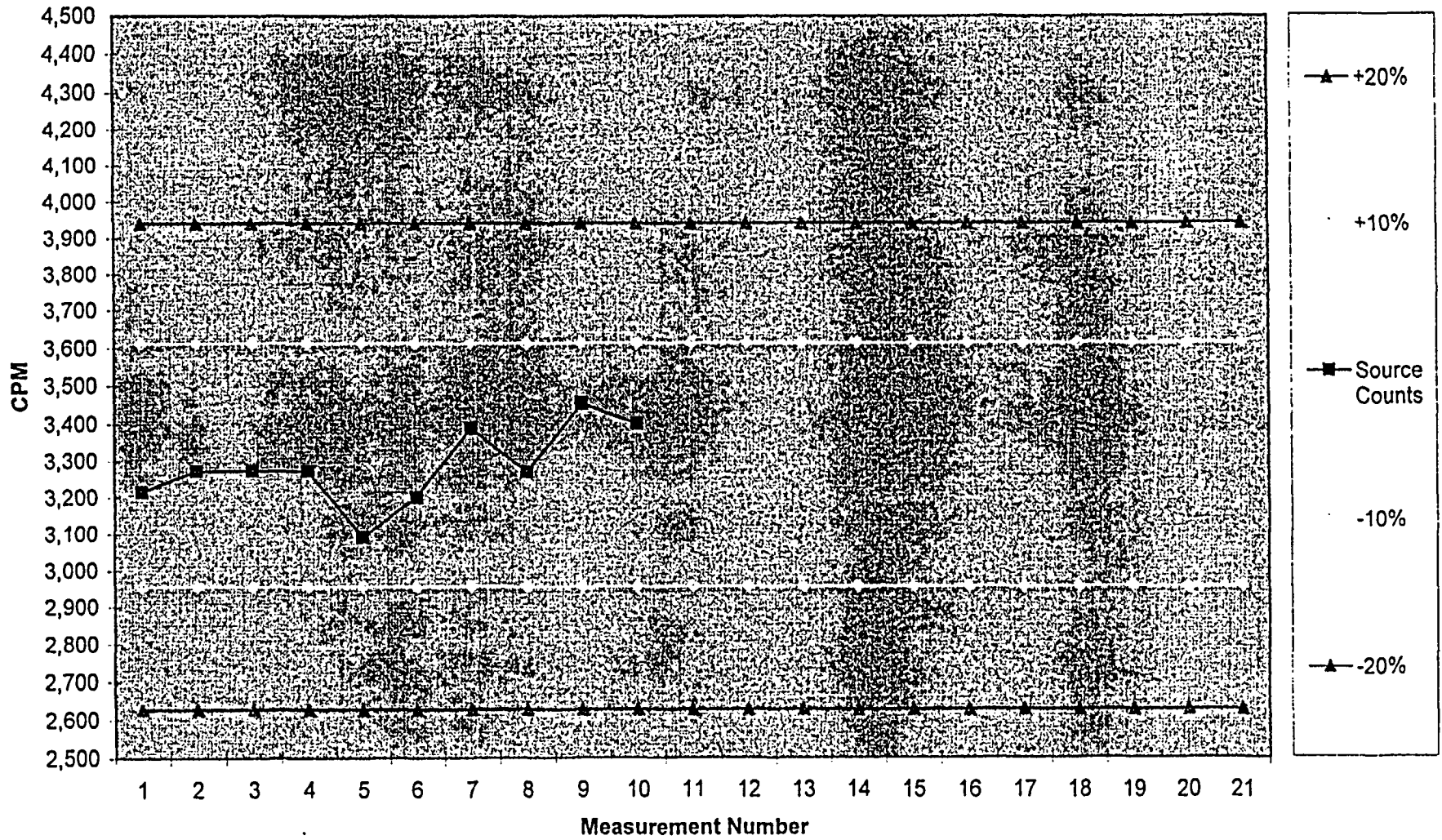
INSTRUMENT: L 2221 SERIAL #: 152184 CAL DUE: 3/5/04
 PROBE: 44-62 SERIAL #: 183679 CAL DUE: 3/5/04
 SOURCE: Cs 137 SERIAL #: Cs137/19cs250 Setup Date: 6/18/03
 ACTIVITY: 8.95 μ Ci
 BKG COUNT TIME: 1 minute SOURCE COUNT TIME: 1 minute
 CALIBRATED OPERATING VOLTAGE: 800 THRESHOLD VALUE: 100

| COUNT # | SOURCE CPM | BKG CPM | NET SOURCE CTS | EFFICIENCY (D) |
|----------|------------|---------|----------------|----------------|
| 1 | 4,063 | 848 | 3,215 | N/A |
| 2 | 4,129 | 857 | 3,272 | N/A |
| 3 | 4,146 | 873 | 3,273 | N/A |
| 4 | 4,184 | 912 | 3,272 | N/A |
| 5 | 3,976 | 885 | 3,091 | N/A |
| 6 | 4,058 | 858 | 3,200 | N/A |
| 7 | 4,252 | 864 | 3,388 | N/A |
| 8 | 4,175 | 906 | 3,269 | N/A |
| 9 | 4,352 | 898 | 3,454 | N/A |
| 10 | 4,279 | 879 | 3,400 | N/A |
| 11 | | | | N/A |
| 12 | | | | N/A |
| 13 | | | | N/A |
| 14 | | | | N/A |
| 15 | | | | N/A |
| 16 | | | | N/A |
| 17 | | | | N/A |
| 18 | | | | N/A |
| 19 | | | | N/A |
| 20 | | | | N/A |
| 21 | | | | N/A |
| Averages | 4,161 | 878 | 3,283 | N/A |

+ 10% 3,612 -10% 2,955
 + 20% 3,940 - 20% 2,627

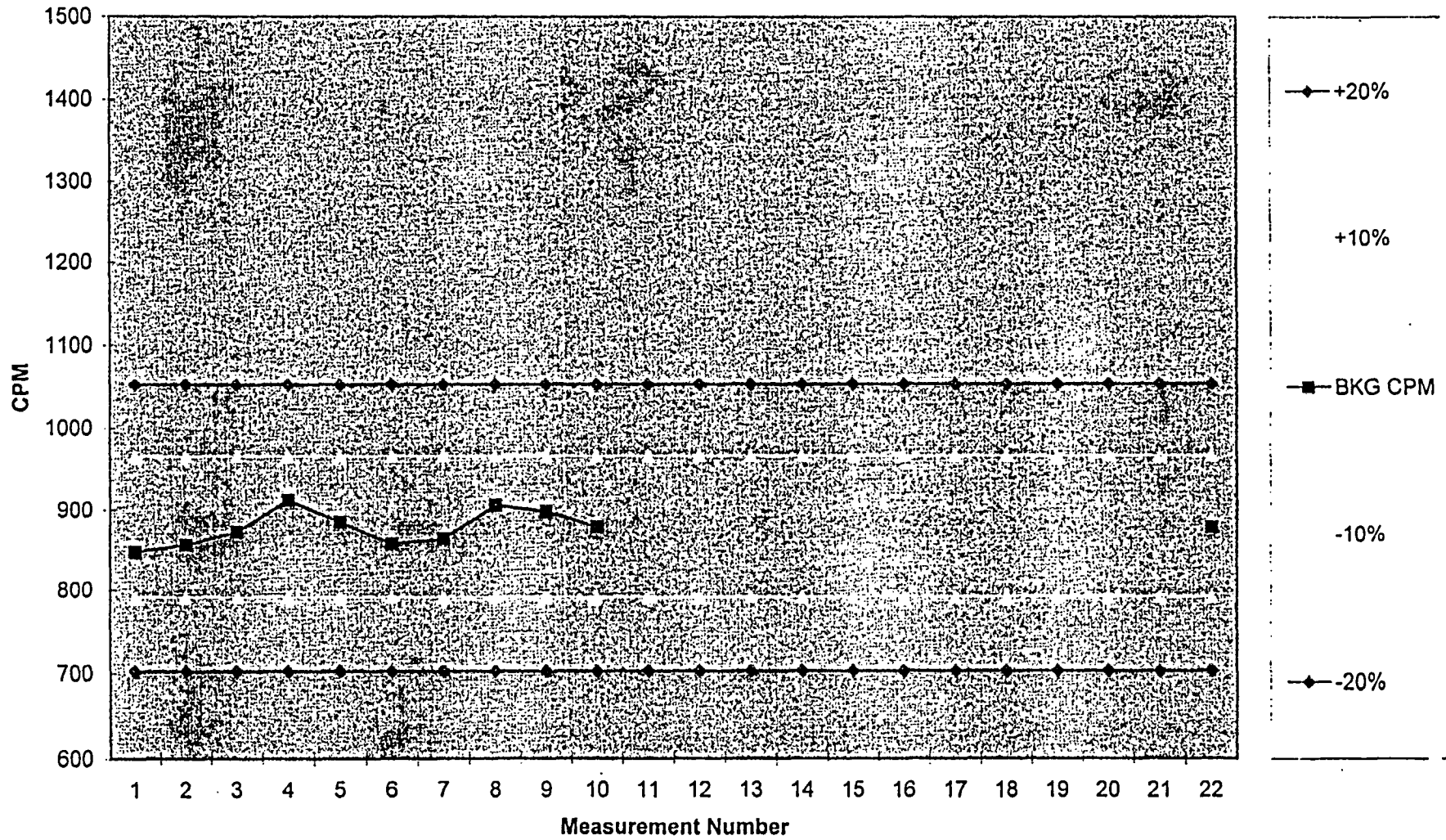
PERFORMED BY: Brad Myers DATE: 06/18/03
 REVIEWED BY: Frank Myers DATE: 06/18/03

Initial Setup Source Range 6/18/03
Instrument:L-2221 # 152184 Probe:44-62# 183679



JKG

Initial Setup Background Range 6/18/03
Instrument:L-2221 # 152184 Probe:44-62 # 183679





Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

3/5/2003

Calibration Certificate for 2221, Serial # 152184, Bar Code # ,Property # SEC-5108

Date: 03/05/03

Date Last Cal. Expires: 09/05/03

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2 SERIAL #: 132896 CAL DUE: 11/26/03

MODEL: SERIAL #: CAL DUE:

AS FOUND DATA

Geotropism: SAT AF Instrument Condition: SAT AL Instrument Condition: SAT

HIGH VOLTAGE

(+/- 10% tolerance)

| HIGH VOLTAGE | AS FOUND HV | AS LEFT HV | AF Instrument Condition: SAT | AL Instrument Condition: SAT |
|--------------|-------------|------------|---|------------------------------|
| 500 V: | 501 | AF | <input type="checkbox"/> New Batteries? | AF Mechanical Zero: 0 |
| 1000 V: | 1001 | AF | Threshold ratio: 100=10mV | AL Mechanical Zero: 0 |
| 1500 V: | 1494 | AF | AF THRESHOLD: 9.3 mV | AF HV Reading: 797 V |
| | | | AL THRESHOLD: 10.0 mV | AL HV Reading: 800 V |

| RATE METER | | | | | |
|-----------------------|----------|----------|---------|---------|---------|
| SCALE | RATE CPM | AS FOUND | % ERROR | AS LEFT | % ERROR |
| x.1 or x1 | 100 | 100 | 0.00% | AF | 0.00% |
| | 250 | 250 | 0.00% | AF | 0.00% |
| | 400 | 395 | 1.25% | AF | 1.25% |
| x1 or x10 | 1000 | 1000 | 0.00% | AF | 0.00% |
| | 2500 | 2500 | 0.00% | AF | 0.00% |
| | 4000 | 3950 | 1.25% | AF | 1.25% |
| x10 or x100 (x1000) | 10K | 10 | 0.00% | AF | 0.00% |
| | 25K | 25 | 0.00% | AF | 0.00% |
| | 40K | 39.5 | 1.25% | AF | 1.25% |
| x100 or x1000 (x1000) | 100K | 100 | 0.00% | AF | 0.00% |
| | 250K | 250 | 0.00% | AF | 0.00% |
| | 400K | 395 | 1.25% | AF | 1.25% |
| SCALER: | | 250 | 0.00% | AF | 0.00% |

| LOG SCALE | | | |
|-----------|-------|----------|--------|
| AF 200: | 200 | % ERROR: | 0.00% |
| AF 2000: | 2000 | % ERROR: | 0.00% |
| AF 20K: | 19 K | % ERROR: | 5.00% |
| AF 200K: | 180 K | % ERROR: | 10.00% |
| AL 200: | AF | % ERROR: | 0.00% |
| AL 2000: | AF | % ERROR: | 0.00% |
| AL 20K: | AF K | % ERROR: | 5.00% |
| AL 200K: | AF K | % ERROR: | 10.00% |

Is the As Found Data Within 20% of the Set Point?

Is the As Found Data Within 20% of the Set Point?

| REPRODUCIBILITY | | | |
|----------------------|-------|-------|-------|
| x.1 or x1 Scale: | 250 | 250 | 250 |
| x1 or x10 Scale: | 2500 | 2500 | 2500 |
| x10 or x100 Scale: | 25 K | 25 K | 25 K |
| x100 or x1000 Scale: | 250 K | 250 K | 250 K |

Audio Response: SAT
 Audio Divide: SAT
 Push Buttons: SAT
 Lamp: SAT
 Scaler/Digital: SAT

Are the Individual Counts Within 10% of the Average?

Fast / Slow Response Function Properly?

Comments Married as a set with: Model: 44-2 Serial #: PR145722
 Meter returned due to probe problem.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration: 03/05/04

Performed by: Carl Hall
 Printed Name: Carl Hall

Reviewed by: [Signature] Date: 3/6/03

Entered In Computer Maintenance By: [Signature] Date: 3/6/03



Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

3/6/2003

Calibration Certificate for 44-62, Serial # PR183679, Bar Code # , Property # SEC-5109

Date: 03/05/03 Date Last Cal. Expires: 09/05/03 Technician: Carl Hall

Location: 9999, Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

| | | |
|-------------|------------------|-------------------|
| MODEL: 2221 | SERIAL #: 152184 | CAL DUE: 03/05/04 |
| MODEL: | SERIAL #: | CAL DUE: |

NIST TRACEABLE SOURCES USED

| SOURCE | ISOTOPE | ACTIVITY | ASSAY DATE |
|--------------|---------|----------|------------|
| 99CS250-0288 | Cs-137 | 8.8 uCi | 3/18/1999 |

AS FOUND DATA

AF Instrument Condition: SAT

AL Instrument Condition: SAT

Efficiency from Last Cal.: 0.04 % HV From Last Calibration: 800 V Calibration Threshold: 10 mV

| | HV | Heel Count | Center Count | Toe Count | Background Count | Uniformity | Probe Efficiency |
|-----------|-------|------------|--------------|-----------|------------------|------------|------------------|
| AS FOUND: | 800 V | | 7456 | | 448 | % Cs-137 | 0.04% |
| AS LEFT: | AF V | | | | | % Cs-137 | |

Is the As Found Efficiency Within 20% of the efficiency from the last cal.?

Reproducibility: Isotope: Cs-137 7179 7120 7858 Average: 7386

Are the individual counts within 10% of the average?

If As Found Efficiency (even after repair) is within 10% of the last calibration and uniformity is <10%, the technician may N/A the Plateau Data and proceed to Comments. Geometry: NaI probes are 4-1/2" from source. All other probes are in contact with surface unless otherwise specified.

PLATEAU AND SET POINT DATA (CPM)

| High Voltage | Source Response | Background | HV | HEEL | CENTER | TOE | Background | Uniformity | Efficiency |
|--------------|-----------------|------------|----|------|--------|-----|------------|------------|------------|
| N/A | | | V | | | | | | % Cs-137 |

Comments:

Married as a set with: Model: 2221

Serial #: 152184

No problem found.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

03/05/04

Performed by: Carl Hall

Reviewed by: [Signature]

Date: 3/6/03

Printed Name: Carl Hall

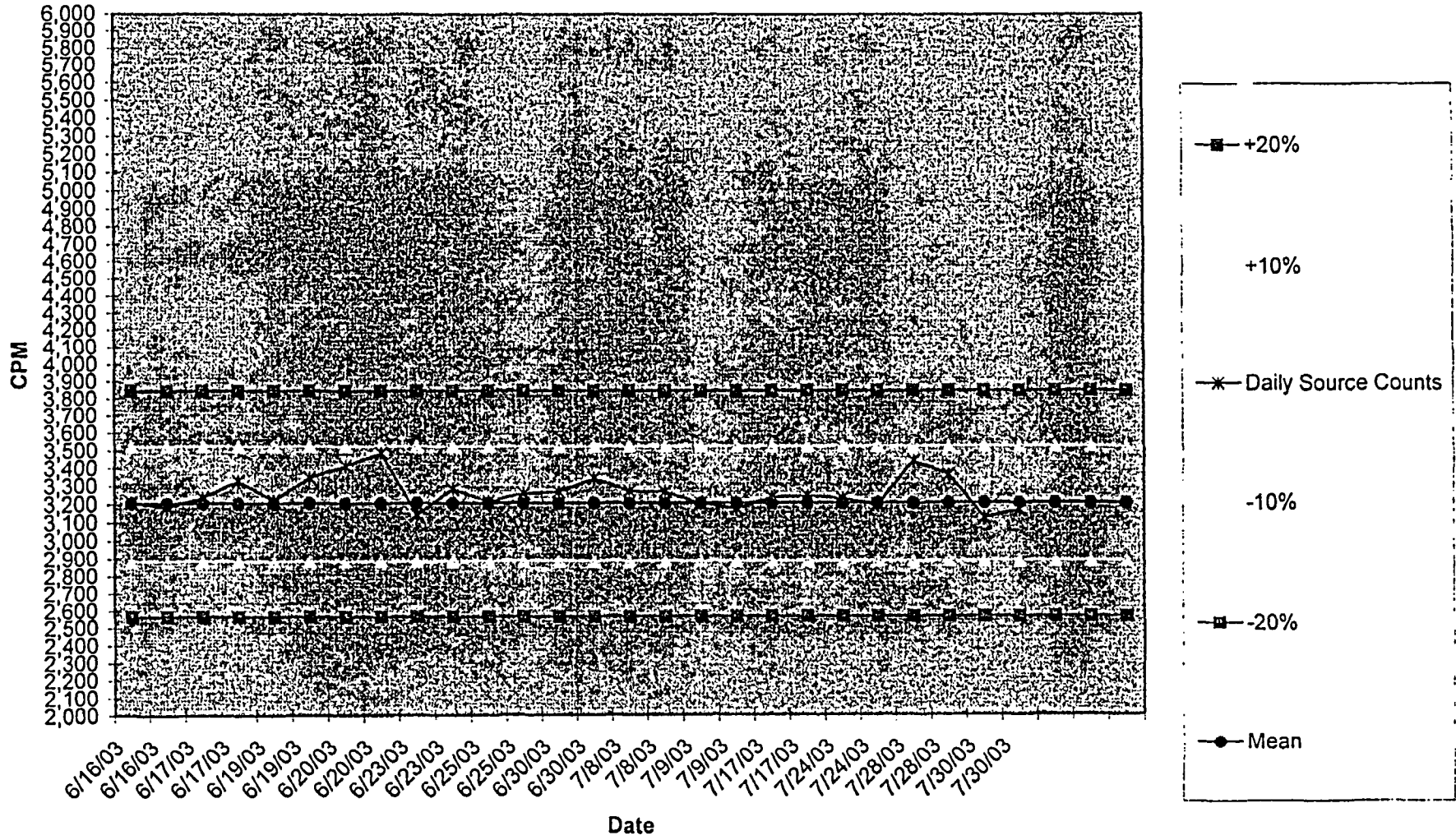
Entered in Computer Inventory By: [Signature]

Date: 3/6/03

Instrument Set 19

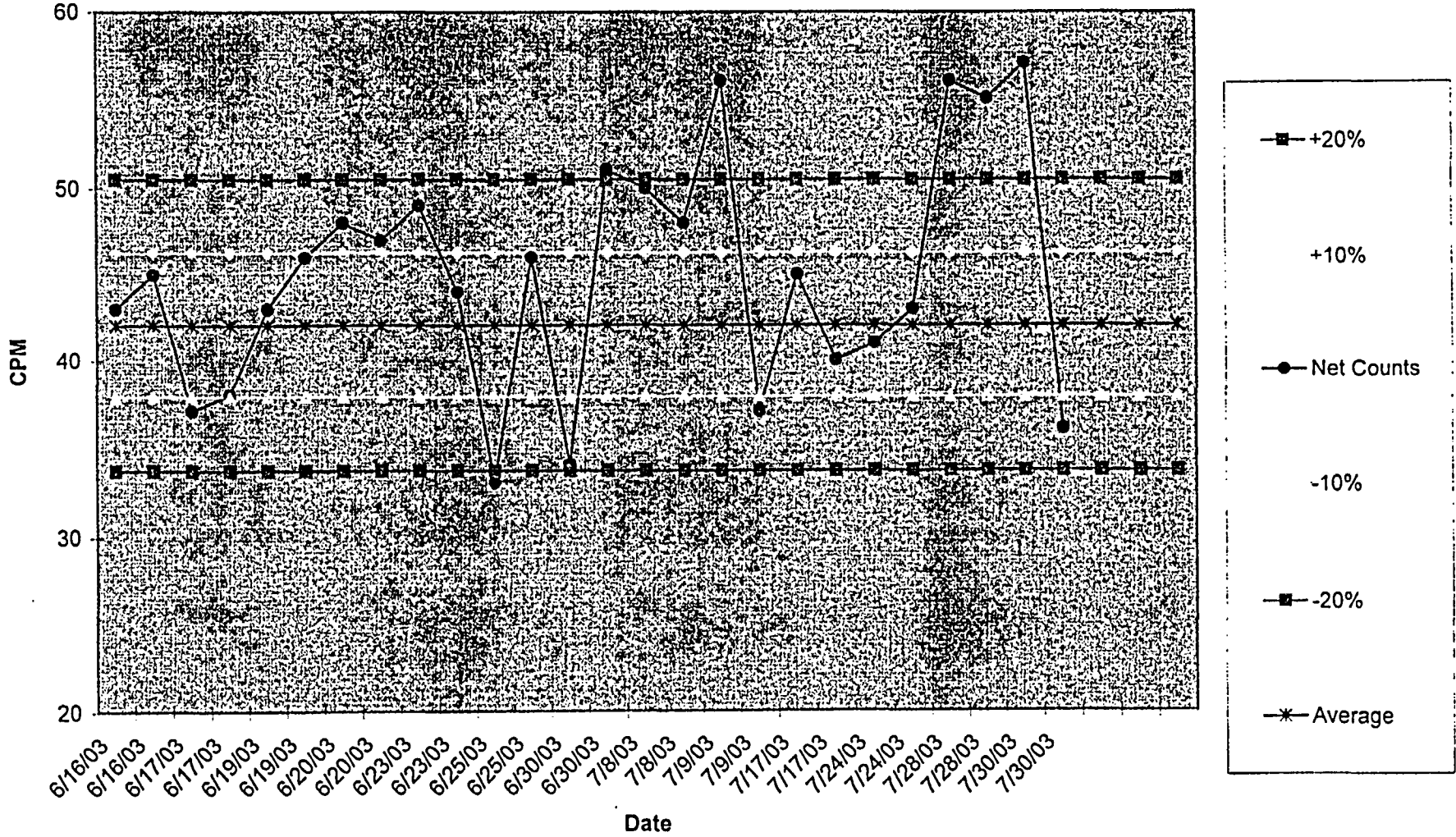
Daily Source

Daily Source Range
Instrument: Model 12 # 167173 Probe: L-44-9# 151868



Daily Background Range

Instrument: Model 12 # 167173 Probe: L-44-9 # 151868



UVAP
INITIAL SETUP / ACCEPTABLE RANGE DATA SHEET

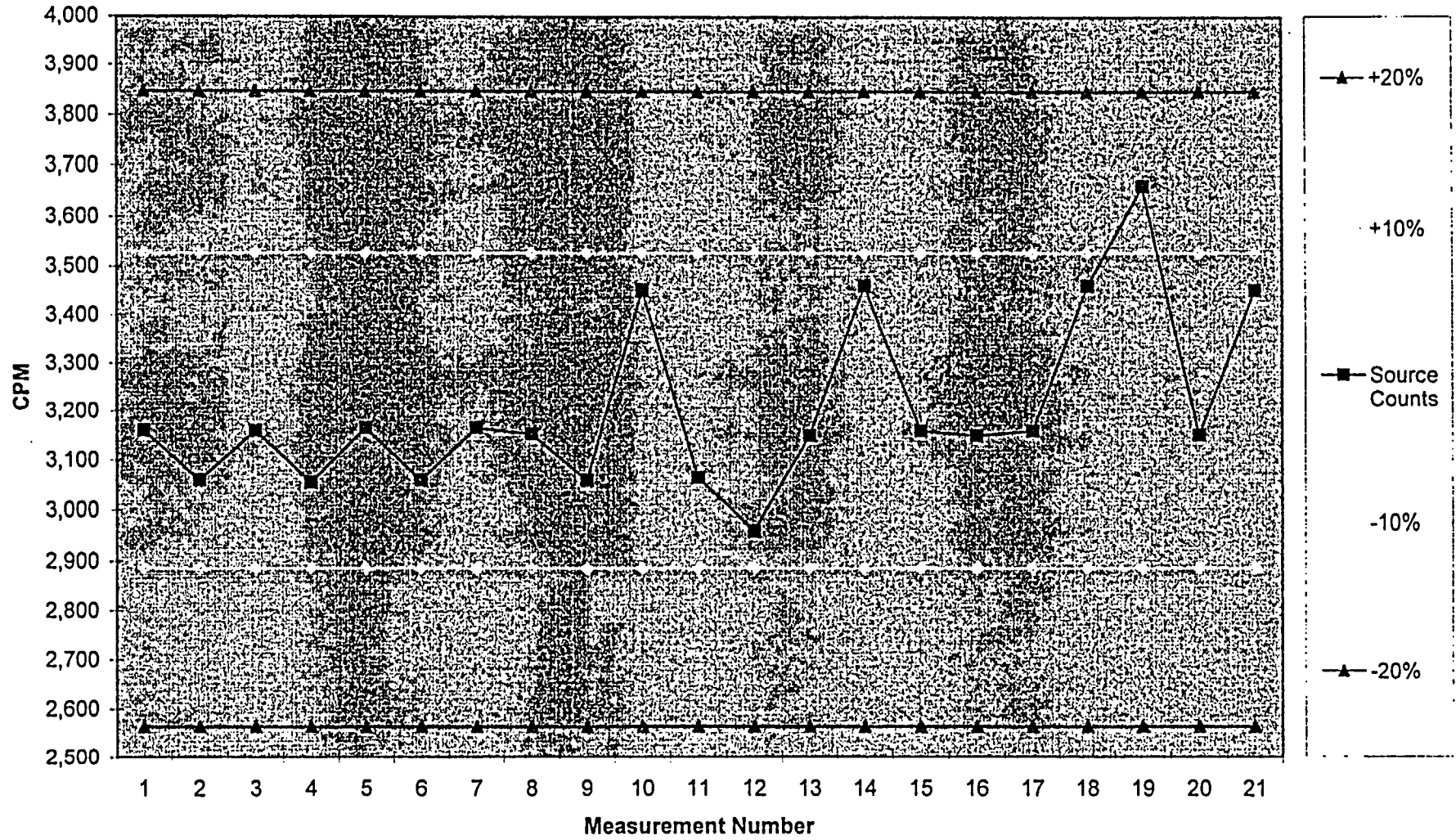
INSTRUMENT: Model-12 SERIAL #: 167173 CAL DUE: 2/20/04
 PROBE: L 44-9 SERIAL #: 151868 CAL DUE: 2/20/04
 SOURCE: Tc-99 SERIAL #: C4700730 Setup Date: 6/16/03
 ACTIVITY: 35,800 dpm
 BKG COUNT TIME: 1MINUTE SOURCE COUNT TIME: 1 MINUTE
 CALIBRATED OPERATING VOLTAGE: 900 THRESHOLD VALUE: 350

| COUNT # | SOURCE CPM | BKG CPM | NET SOURCE CTS | EFFICIENCY (D) |
|----------|------------|---------|----------------|----------------|
| 1 | 3,200 | 40 | 3,160 | N/A |
| 2 | 3,100 | 40 | 3,060 | N/A |
| 3 | 3,200 | 40 | 3,160 | N/A |
| 4 | 3,100 | 45 | 3,055 | N/A |
| 5 | 3,200 | 35 | 3,165 | N/A |
| 6 | 3,100 | 40 | 3,060 | N/A |
| 7 | 3,200 | 35 | 3,165 | N/A |
| 8 | 3,200 | 47 | 3,153 | N/A |
| 9 | 3,100 | 40 | 3,060 | N/A |
| 10 | 3,500 | 49 | 3,451 | N/A |
| 11 | 3,100 | 35 | 3,065 | N/A |
| 12 | 3,000 | 40 | 2,960 | N/A |
| 13 | 3,200 | 50 | 3,150 | N/A |
| 14 | 3,500 | 40 | 3,460 | N/A |
| 15 | 3,200 | 40 | 3,160 | N/A |
| 16 | 3,200 | 50 | 3,150 | N/A |
| 17 | 3,200 | 40 | 3,160 | N/A |
| 18 | 3,500 | 40 | 3,460 | N/A |
| 19 | 3,700 | 40 | 3,660 | N/A |
| 20 | 3,200 | 48 | 3,152 | N/A |
| 21 | 3,500 | 49 | 3,451 | N/A |
| Averages | 3,115 | 42 | 3,206 | N/A |

+ 10% 3,526 -10% 2,885
 + 20% 3,847 - 20% 2,564

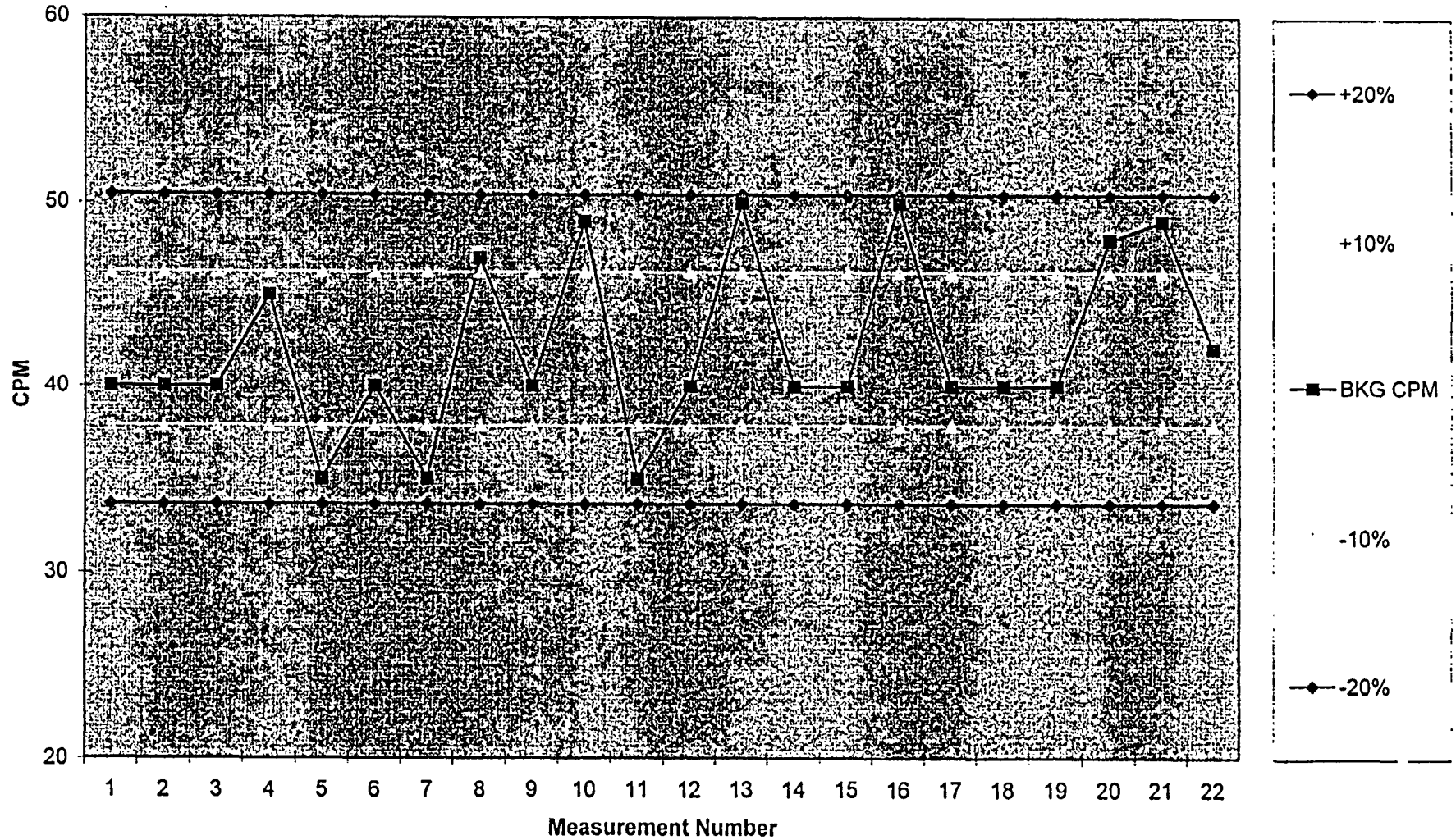
PERFORMED BY: Alice Thompson DATE: 06/16/03
 REVIEWED BY: Frank Myers DATE: 04/24/02

Initial Setup Source Range 11/12/01
Instrument: Model 12# 167173 Probe: L-44-9 151868



Initial BKG

Initial Setup Background Range 11/12/01
Instrument:L-Model 12 # 167173 Probe: L44-9 # 151868





Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

2/20/2003

Calibration Certificate for 12, Serial # 167173, Bar Code # , Property # SEC0000641

Date: 02/20/03

Date Last Cal. Expires: 07/09/03

Technician: David Moyer

Location: 9999,

Reason For Calibration: Due for Calibration

EQUIPMENT USED DURING CALIBRATION

| | | |
|-------------|-----------------|-------------------|
| MODEL 500-2 | SERIAL #: 87591 | CAL DUE: 11/26/03 |
| MODEL | SERIAL #: | CAL DUE: |

AS FOUND DATA

Geotropism: SAT AF Instrument Condition: SAT AL Instrument Condition: SAT

| | | | | | |
|--|--------------------|-------------------|---|-----------------------|------------|
| HIGH VOLTAGE (+/- 10% tolerance) | AS FOUND HV | AS LEFT HV | <input type="checkbox"/> New Batteries? | Battery Check: SAT | Alarm: N/A |
| 500 V: | 500 | AF | AF Mechanical Zero: 0 | AL Mechanical Zero: 0 | |
| 1000 V: | 1000 | AF | AF THRESHOLD: 33.6 mV | AF HV Reading: 884 V | |
| 1500 V: | 1500 | AF | AL THRESHOLD: 35 mV | AL HV Reading: 900 V | |

HV Range 400-1500V: N/A

RATE METER

| SCALE | RATE CPM | AS FOUND | % ERROR | AS LEFT | % ERROR |
|-----------------------|----------|----------|---------|---------|---------|
| x.1 or x1 | 100 | 100 | 0.00% | AF | 0.00% |
| | 250 | 250 | 0.00% | AF | 0.00% |
| | 400 | 400 | 0.00% | AF | 0.00% |
| x1 or x10 | 1000 | 1000 | 0.00% | AF | 0.00% |
| | 2500 | 2500 | 0.00% | AF | 0.00% |
| | 4000 | 3900 | 2.50% | AF | 2.50% |
| | | | | | |
| x10 or x100 (x1000) | 10K | 10 | 0.00% | AF | 0.00% |
| | 25K | 25 | 0.00% | AF | 0.00% |
| | 40K | 39.5 | 1.25% | AF | 1.25% |
| | | | | | |
| x100 or x1000 (x1000) | 100K | 100 | 0.00% | AF | 0.00% |
| | 250K | 250 | 0.00% | AF | 0.00% |
| | 400K | 395 | 1.25% | AF | 1.25% |
| SCALER: | | 250 | 0.00% | AF | 0.00% |

REPRODUCIBILITY

| | | | |
|----------------------|-------|-------|-------|
| x.1 or x1 Scale: | 250 | 250 | 250 |
| x1 or x10 Scale: | 2500 | 2500 | 2500 |
| x10 or x100 Scale: | 25 K | 25 K | 25 K |
| x100 or x1000 Scale: | 250 K | 250 K | 250 K |

- Are the Individual Counts Within 10% of the Average?
- Fast / Slow Response Switch Functions Properly?

Audio Response: SAT
 Audio Divide: N/A
 Push Buttons: SAT
 Lamp: N/A
 Scaler/Digital: SAT

Is the As Found Data Within 20% of the Set Point?

Comments Married as a set with: Model: 44-9 Serial #: PR151868

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration: 02/20/04

Performed by: David Moyer

Reviewed by: [Signature] Date: 2/20/03

Printed Name: David Moyer

Entered in Computer Inventory By: WM

Date: 2/20/03



Safety and Ecology Corporation

2800 Solway Road
Knoxville, TN 37931

Calibration Certificate

2/20/2003

Calibration Certificate for 44-9, Serial # PR151868, Bar Code # , Property # SEC0000821

Date: 02/20/03 Date Last Cal. Expires: 07/18/03 Technician: David Moyer
Location: 9999, Reason For Calibration: Due for Calibration

EQUIPMENT USED DURING CALIBRATION

MODEL: 12 SERIAL # 167173 CAL DUE: 02/20/04
MODEL: SERIAL # CAL DUE:

NIST TRACEABLE SOURCES USED

| SOURCE | ISOTOPE | ACTIVITY | ASSAY DATE |
|---------|---------|---|------------|
| 4050-02 | Tc-99 | 36300 dpm ^{23,700 d/c} _{3 yr} | 9/25/2002 |
| 4052-02 | Sr-90 | 26100 dpm | 9/25/2002 |

Geometry: In contact with surface unless otherwise specified.

AS FOUND DATA

AF Instrument Condition: SAT AL Instrument Condition: SAT

PREV. Tc-99 EFFICIENCY: 13.22 % Calibration Voltage: 900 V Calibration Threshold: 35 mV ^{26.2344}
1 MINUTE COUNTS: Tc-99: 5275 5322 5369 AVERAGE: 5322.0 Tc-99 EFFICIENCY: 14.54%
AF BKG: 44.7 Sr-90 Count: 6826 Sr-90 EFF: 25.98%

AS LEFT DATA

1 MINUTE COUNTS: Tc-99: AF AF AF AVERAGE: Tc-99 EFFICIENCY:
AL BKG: AF Sr-90 Count: AF Sr-90 EFF:

- Is the as found efficiency within 20% of eff. from last cal.?
- Reproducibility: Are the individual counts within 10% of the average?
- Does the probe meet final acceptance criteria?
- Calibration sticker attached?

Comments: Married as a set with: Model: 12 Serial #: 167173

Date Instrument is Due For Next Calibration: 02/20/04

Performed by: David Moyer Reviewed by: [Signature] Date: 2/20/03

Printed Name: David Moyer

Entered in Computer Inventory By: WM Date: 2/20/03

Instrument Set 20

**UVAP
INITIAL SETUP / ACCEPTABLE RANGE DATA SHEET**

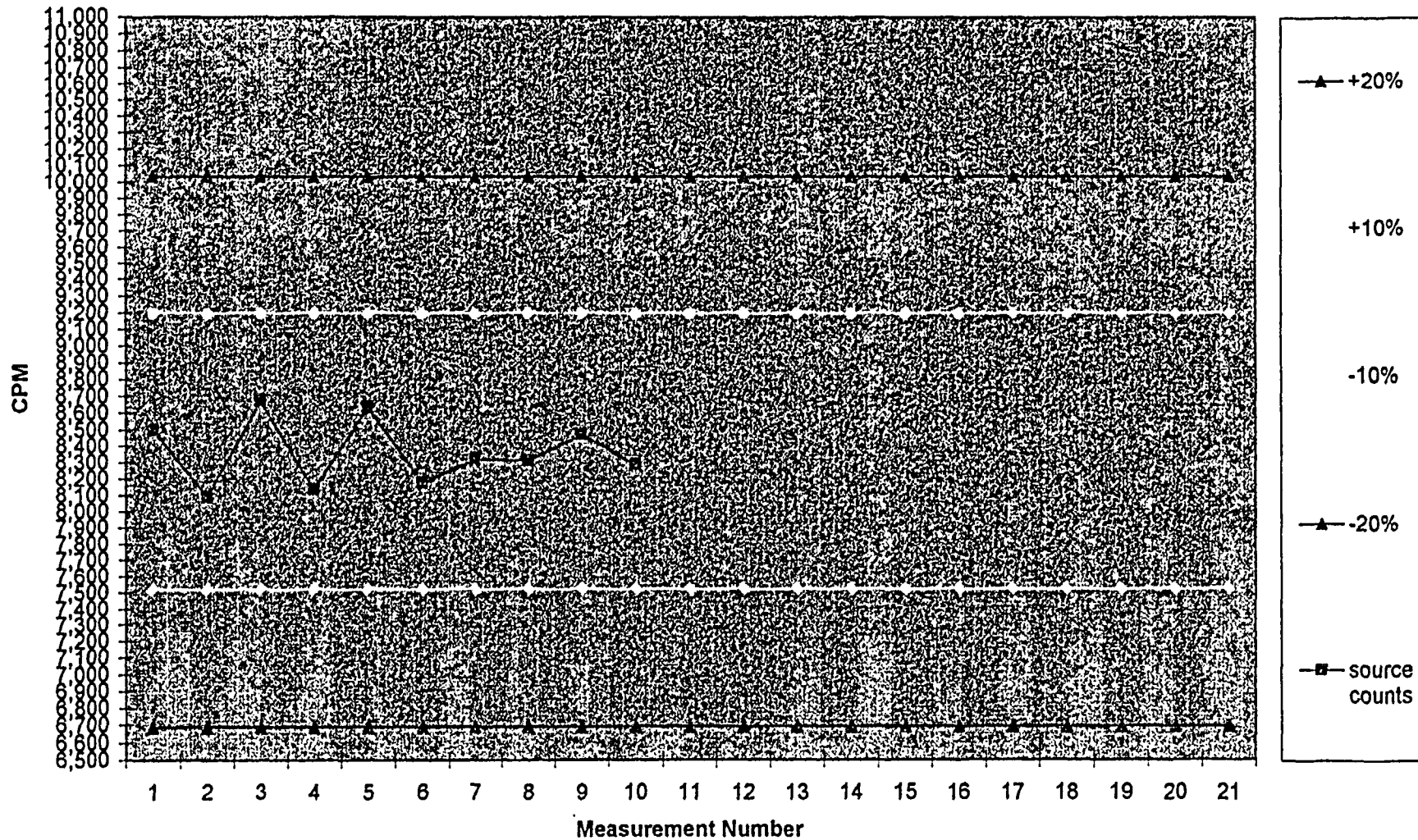
L2221 SERIAL #: **172051** CAL DUE: **9/2/2004**
PROBE: L 43-68 SERIAL #: **160795** CAL DUE: **9/2/2004**
SOURCE: TC99 SERIAL #: **98tc470** Setup Date **9/4/2003**
ACTIVITY: 35800 dpm
BKG COUNT TIME: 1MINUTE SOURCE COUNT TIME: **1 MINUTE**
CALIBRATED OPERATING VOLTAGE: 1725 THRESHOLD VALUE: **100**

| COUNT # | SOURCE CPM | BKG CPM | NET SOURCE CTS | EFFICIENCY (D) |
|----------|------------|---------|----------------|----------------|
| 1 | 8,781 | 281 | 8,500 | N/A |
| 2 | 8,417 | 325 | 8,092 | N/A |
| 3 | 8,997 | 322 | 8,675 | N/A |
| 4 | 8,421 | 282 | 8,139 | N/A |
| 5 | 8,996 | 361 | 8,635 | N/A |
| 6 | 8,521 | 343 | 8,178 | N/A |
| 7 | 8,863 | 334 | 8,319 | N/A |
| 8 | 8,653 | 341 | 8,312 | N/A |
| 9 | 8,809 | 337 | 8,472 | N/A |
| 10 | 8,582 | 293 | 8,289 | N/A |
| 11 | | | | N/A |
| 12 | | | | N/A |
| 13 | | | | N/A |
| 14 | | | | N/A |
| 15 | | | | N/A |
| 16 | | | | N/A |
| 17 | | | | N/A |
| 18 | | | | N/A |
| 19 | | | | N/A |
| 20 | | | | N/A |
| 21 | | | | N/A |
| Averages | 8,654 | 321 | 8,361 | N/A |

+ 10% 9,197 -10% 7,525
 + 20% 10,033 - 20% 6,689

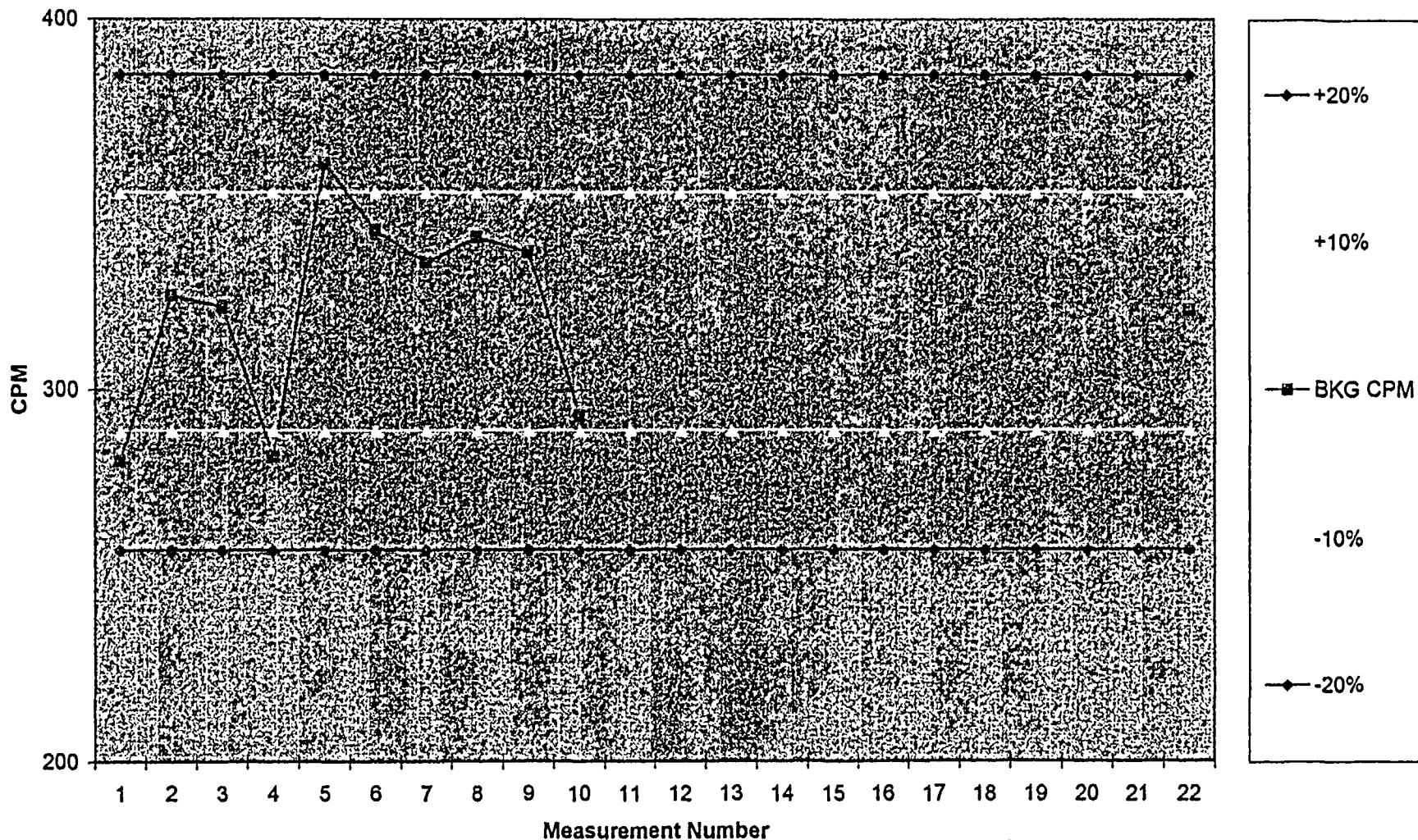
PERFORMED BY: Brad Myers DATE: **04/05/03**
VIEWED BY: Frank Myers DATE: **04/05/03**

Initial Setup Source Range 9/4/03
Instrument: L-2221 # 172051 Probe: L-43-68# 160795



Initial BKG

Initial Setup Background Range 09/04/03
Instrument:L-2221 # 172051 Probe: L-43-68# 160795





Safety and Ecology Corporation

2800 Solway Road

Knoxville, TN 37931

Calibration Certificate

9/2/2003

Calibration Certificate for 2221, Serial # 172051, Bar Code # ,Property # SEC-5219

Date: 09/02/03

Date Last Cal. Expires: 04/02/04

Technician: Carl Hall

Location: 9999.

Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2 SERIAL #: 132896 CAL DUE: 11/26/03

MODEL: SERIAL #: CAL DUE:

AS FOUND DATA

Geotropism: SAT AF Instrument Condition: SAT AL Instrument Condition: SAT

HIGH VOLTAGE

AS FOUND HV

AS LEFT HV

New Batteries?

AF Mechanical Zero: 0

(+/- 10% tolerance)

500 V:

508

AF

Threshold ratio: 100=10mV

AL Mechanical Zero: 0

1000 V:

1008

AF

AF THRESHOLD: 10.0 mV

AF HV Reading: 1727 V

1500 V:

1506

AF

AL THRESHOLD: 10.0 mV

AL HV Reading: 1250 V

RATE METER

| SCALE | RATE CPM | AS FOUND | % ERROR | AS LEFT | % ERROR |
|-----------------------|----------|----------|---------|---------|---------|
| x.1 or x1 | 100 | 100 | 0.00% | AF | 0.00% |
| | 250 | 250 | 0.00% | AF | 0.00% |
| | 400 | 400 | 0.00% | AF | 0.00% |
| x1 or x10 | 1000 | 1000 | 0.00% | AF | 0.00% |
| | 2500 | 2500 | 0.00% | AF | 0.00% |
| | 4000 | 4000 | 0.00% | AF | 0.00% |
| (x1000) | 10K | 10 | 0.00% | AF | 0.00% |
| | 25K | 25 | 0.00% | AF | 0.00% |
| | 40K | 40 | 0.00% | AF | 0.00% |
| x100 or x1000 (x1000) | 100K | 100 | 0.00% | AF | 0.00% |
| | 250K | 250 | 0.00% | AF | 0.00% |
| | 400K | 400 | 0.00% | AF | 0.00% |

Is the As Found Data Within 20% of the Set Point?

DIGITAL SCALER

| | | | |
|------------------|--------------|---------------|--------------|
| AF 250: 250 | % ERR: 0.00% | AL 250: AF | % ERR: 0.00% |
| AF 2500: 2498 | % ERR: 0.08% | AL 2500: AF | % ERR: 0.08% |
| AF 25K: 24.97 K | % ERR: 0.12% | AL 25K: AF K | % ERR: 0.12% |
| AF 250K: 249.7 K | % ERR: 0.12% | AL 250K: AF K | % ERR: 0.12% |

Is the As Found Data Within 20% of the Set Point?

LOG SCALE

| | | | |
|----------------|--------------|---------------|--------------|
| AF 200: 200 | % ERR: 0.00% | AL 200: AF | % ERR: 0.00% |
| AF 2000: 2000 | % ERR: 0.00% | AL 2000: AF | % ERR: 0.00% |
| AF 20K: 20 K | % ERR: 0.00% | AL 20K: AF K | % ERR: 0.00% |
| AF 200K: 200 K | % ERR: 0.00% | AL 200K: AF K | % ERR: 0.00% |

Is the As Found Data Within 20% of the Set Point?

REPRODUCIBILITY

| | | | |
|----------------------|-------|-------|-------|
| x.1 or x1 Scale: | 250 | 250 | 250 |
| x1 or x10 Scale: | 2500 | 2500 | 2500 |
| x10 or x100 Scale: | 25 K | 25 K | 25 K |
| x100 or x1000 Scale: | 250 K | 250 K | 250 K |

Audio Response: SAT

Audio Divide: SAT

Push Buttons: SAT

Lamp: SAT

Scaler/Digital: SAT

Are the Individual Counts Within 10% of the Average?

Fast / Slow Response Function Properly?

Comments

Married as a set with: Model: 43-68

Serial #: PR160795

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration:

09/02/04

Performed by:

Carl Hall

Reviewed by:

[Signature]

Date: 9-2-03

Printed Name:

Carl Hall

Entered in Computer Maintenance By:

[Signature]

Date:

9/2/03



Safety and Ecology Corporation

2800 Solway Road
Knoxville, TN 37931

Calibration Certificate

9/2/2003

Calibration Certificate for 43-68, Serial # PR160795, Bar Code # , Property # SEC-5387

Date: 09/02/03

Date Last Cal. Expires: 06/27/04

Technician: Carl Hall

Location: 9999,

Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 2221

SERIAL #: 172051

CAL DUE 09/02/04

MODEL:

SERIAL #:

CAL DUE

NIST TRACEABLE SOURCES USED

| SOURCE | ISOTOPE | ACTIVITY | ASSAY DATE |
|---------|---------|-----------|-----------------|
| 4071-02 | Th-230 | 35400 dpm | 17900 2/11/2003 |
| 4072-02 | Tc-99 | 29800 dpm | 18600 2/6/2003 |
| 4076-02 | Sr-90 | 16600 dpm | 11600 2/1/2003 |
| 4079-02 | Pu-239 | 29300 dpm | 14900 2/11/2003 |

AS FOUND DATA

AF Instrument Condition: SAT

AL Instrument Condition: SAT

Efficiency from last cal.

Setpoints from last cal.: HV (Alpha): 1250 V HV (Beta): 1725 V Threshold: 10 mV Pu: 22.20 % Tc: 25.61 %

AF Response in CPM: Alpha Beta 2nd AF Response in CPM: Alpha Beta Th: 23.24 % Sr: 39.76 %

Background: 2 324 (after repair)

Pu-239: 6539

Tc-99: 7926

AF Efficiencies: 22.31% 25.51% Th-230 Sr-90

Th-230 / Sr-90: 8194 / 6962 23.14% / 39.99%

Is the As Found Data Within 20% of the efficiency from the last cal.?

Reproducibility: Isotope: Sr-90 6926 6938 6979 Average: 6947.7

Are the individual counts within 10% of the average?

If the As Found data (even after repair) is within 10% of the last calibration, then the technician may N/A Plateau Data and go directly to Comments. Geometry = 1/8" from source unless otherwise specified.

Alpha Source: Th-230

PLATEAU DATA

Beta Source: Tc-99

| HV (Alpha) | Response (CPM): A ch. | Background (CPM): A ch. | Net Eff. |
|------------|-----------------------|-------------------------|----------|
| N/A | | | |

| HV (Beta) | Response (CPM): B ch. | Background (CPM): B ch. | Net Eff. |
|-----------|-----------------------|-------------------------|----------|
| N/A | | | |

BACKGROUND

Alpha HV Pu-239 Th-230 CPM CPM

Beta HV Tc-99 Sr-90 CPM CPM

AL Efficiencies: [] []

AL Efficiencies: [] []

Comments:

Married as a set with: Model: 2221

Serial #: 172051

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument is Due For Next Calibration: 09/02/04

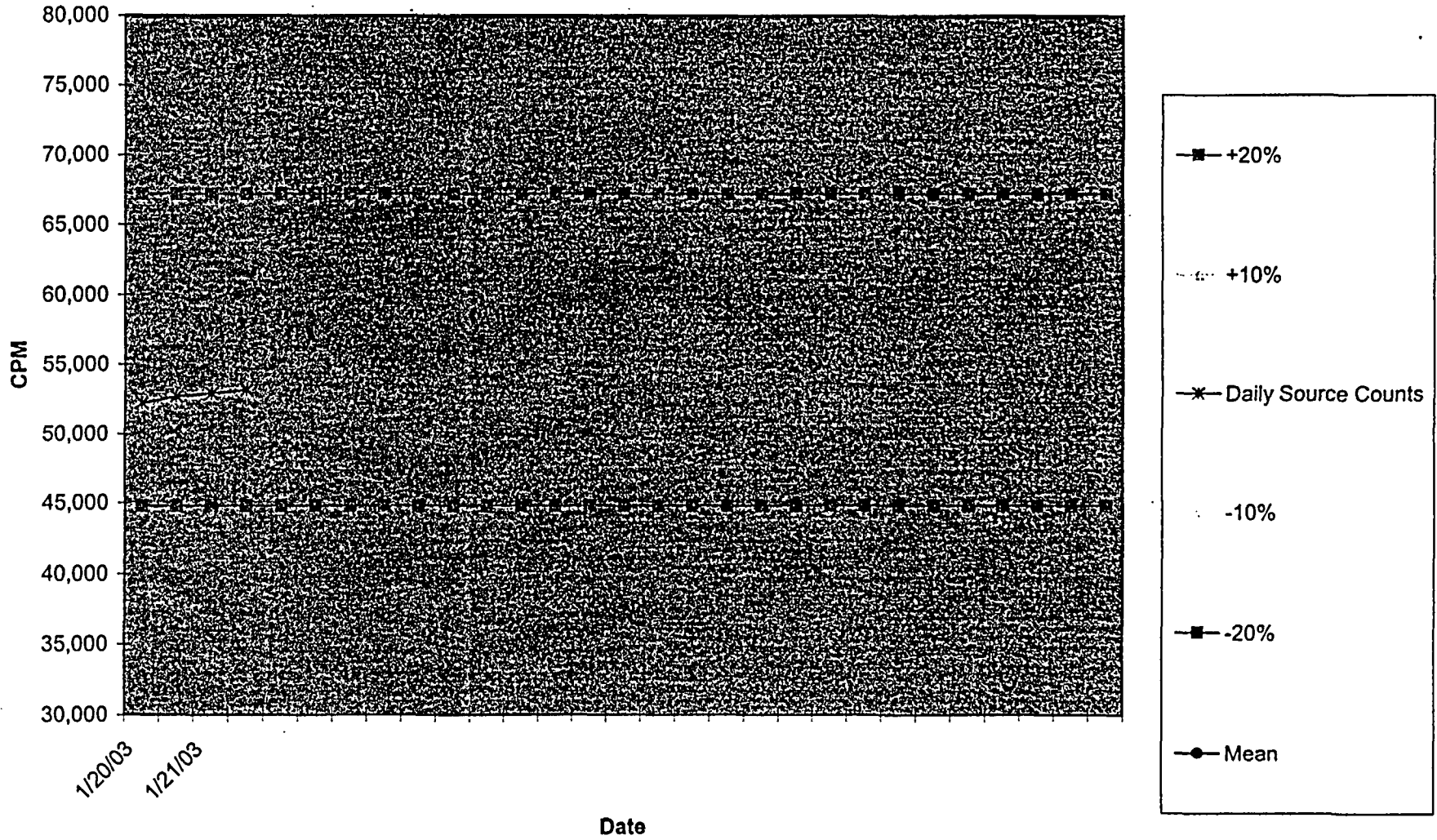
Performed by: Carl Hall

Reviewed by: [Signature] Date: 9-2-03

Printed Name: Carl Hall

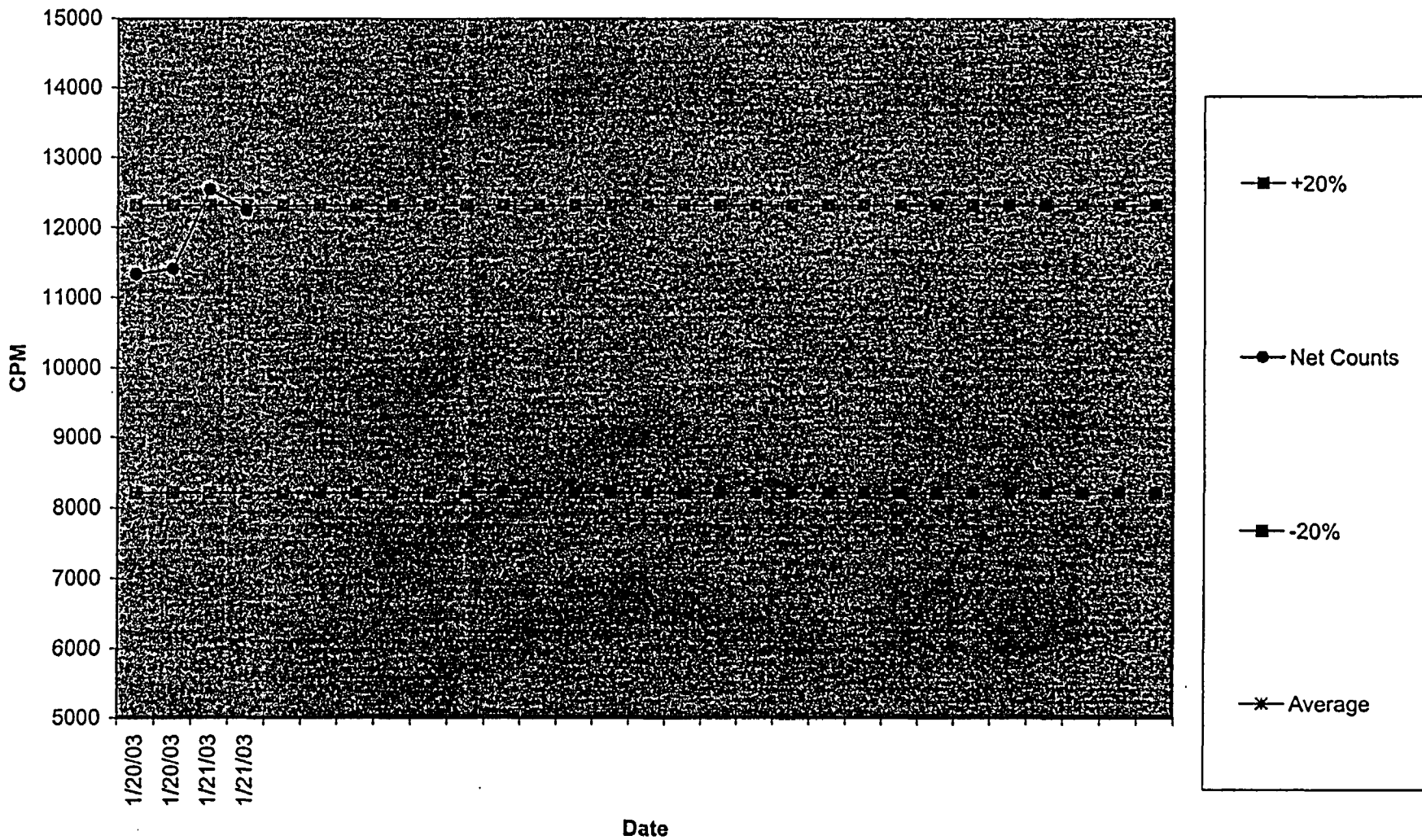
Entered in Computer Inventory By: [Signature] Date: 9/2/03

Daily Source Range
Instrument:L-2221 # 172017 Probe: 44-10# 186956



Daily BKG

Daily Background Range
Instrument:L-2221 #172017 Probe: L-43-68 # 116718



UVAP
INITIAL SETUP / ACCEPTABLE RANGE DATA SHEET

L2221

SERIAL #: 172017

CAL DUE: 04/03/2003

PROBE: L44-10

SERIAL #: 186956

CAL DUE: 04/03/2003

SOURCE: Cs-137

SERIAL #: 17/19cs250

Setup Date: 02/25/2003

ACTIVITY: 8.95 µCi

BKG COUNT TIME: 1MINUTE

SOURCE COUNT TIME: 1 MINUTE

CALIBRATED OPERATING VOLTAGE: 950

THRESHOLD VALUE: 100

| COUNT # | SOURCE CPM | BKG CPM | NET SOURCE CTS | EFFICIENCY (D) |
|----------|------------|---------|----------------|----------------|
| 1 | 67,808 | 10305 | 57,503 | N/A |
| 2 | 66,271 | 10061 | 56,210 | N/A |
| 3 | 65,543 | 10293 | 55,250 | N/A |
| 4 | 60,013 | 10269 | 49,744 | N/A |
| 5 | 66,660 | 10383 | 56,277 | N/A |
| 6 | | | 0 | |
| 7 | | | 0 | |
| 8 | | | 0 | |
| 9 | | | 0 | |
| 10 | | | 0 | |
| 11 | | | 0 | |
| 12 | | | 0 | |
| 13 | | | 0 | |
| 14 | | | 0 | |
| 15 | | | 0 | |
| 16 | | | 0 | |
| 17 | | | 0 | |
| 18 | | | 0 | |
| 19 | | | 0 | |
| 20 | | | 0 | |
| 21 | | | 0 | |
| Averages | 65,259 | 10,262 | 55,997 | |

+ 10% 61,597
+ 20% 67,196

-10% 50,397
- 20% 44,798

PERFORMED BY: Brad Myers

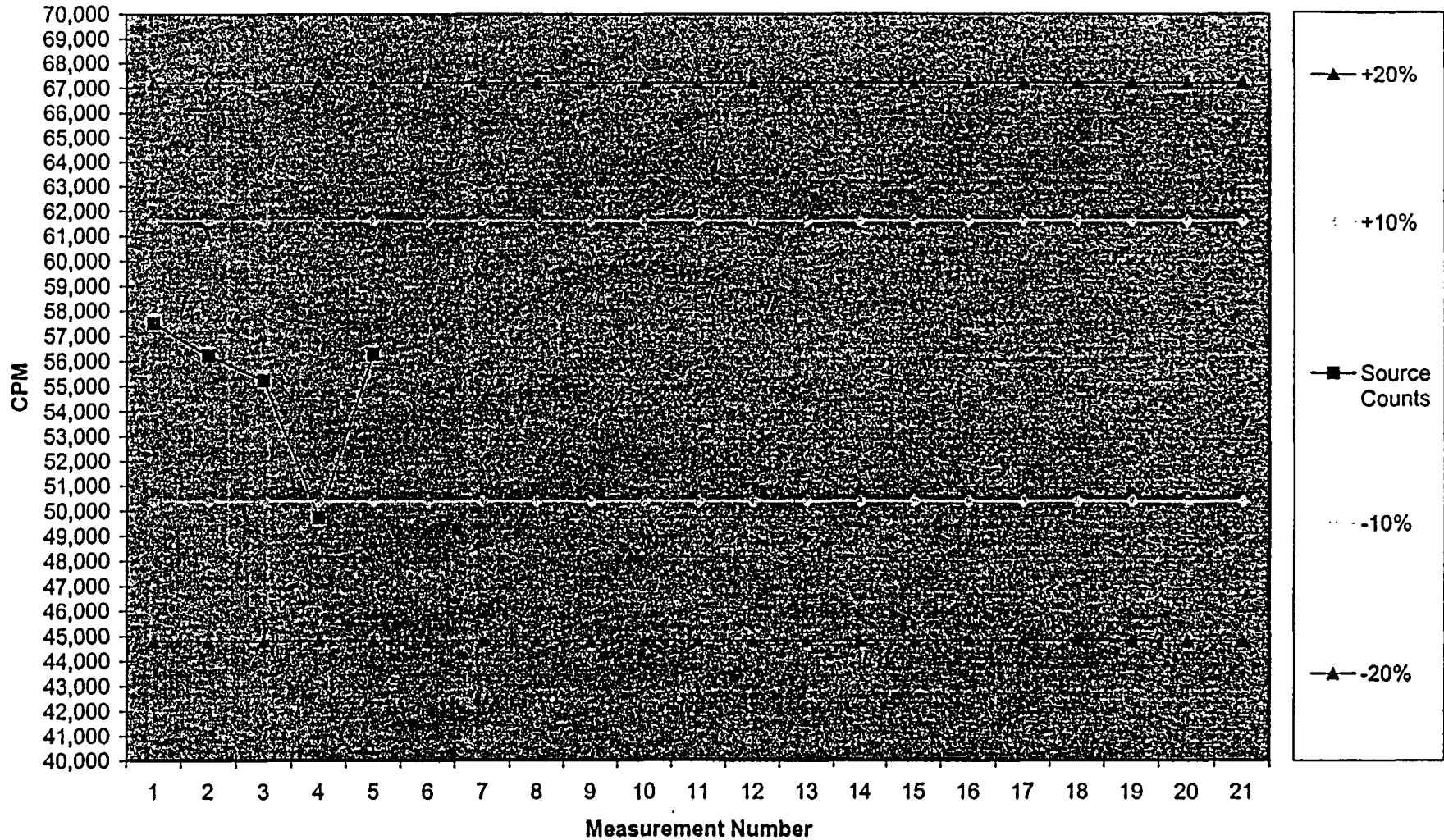
DATE: 01/19/03

REVIEWED BY: Frank Myers

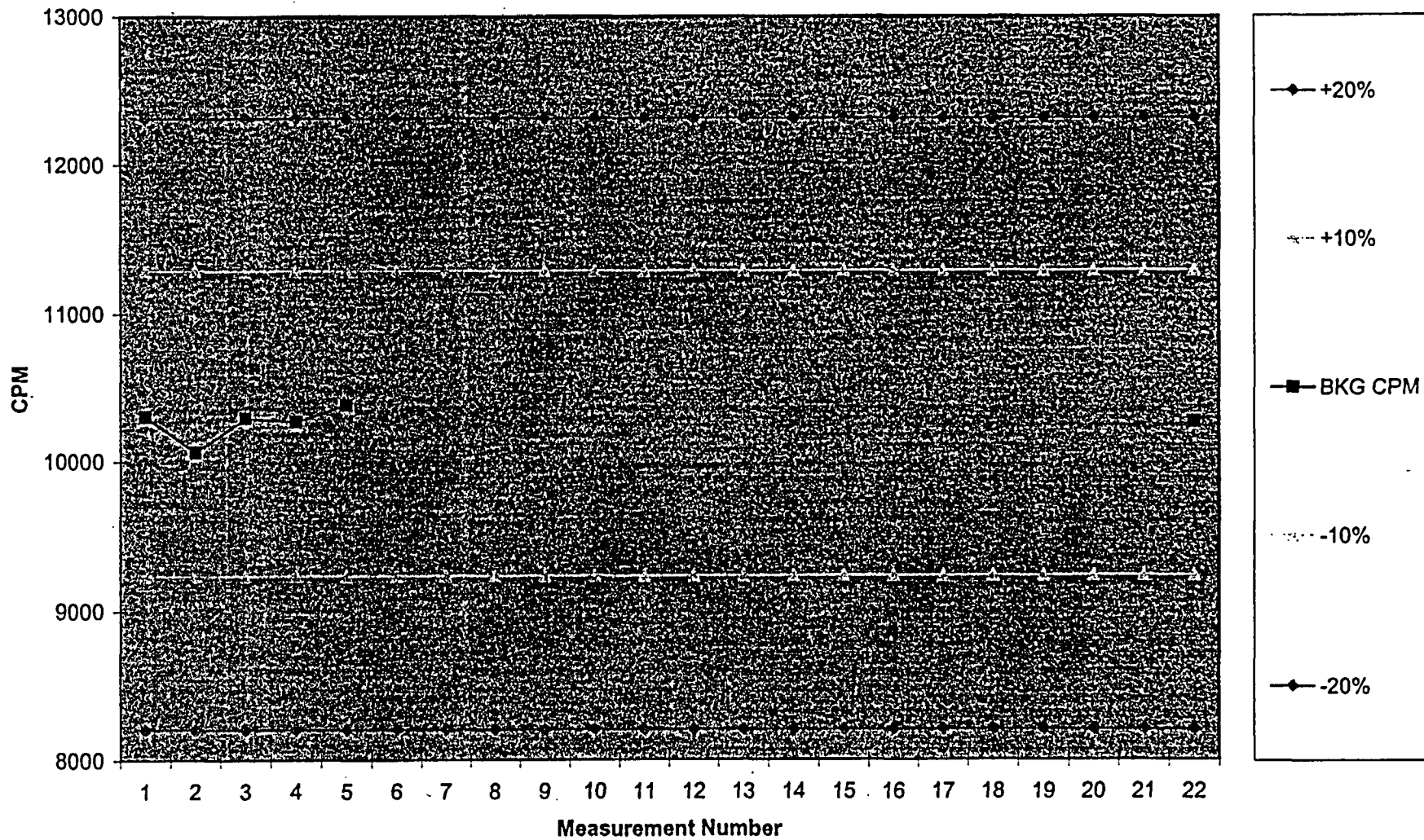
DATE: 01/19/03

Initial Source

Initial Setup Source Range 2/25/03
Instrument:L-2221 # 172017 Probe: L-44-10# 186956



Initial Setup Background Range 04/24/02
Instrument:L-2221 # 172017 Probe: L-44-10# 186956





Safety and Ecology Corporation
 2800 Solway Road
 Knoxville, TN 37931
Calibration Certificate

COPY
4/02

Calibration Certificate for 2221, Serial # 172017, Bar Code # , Property # SEC0000956

Date: 04/02/02 Date Last Cal. Expires: 01/28/03 Technician: Carl Hall
 Location: 9999, Reason For Calibration: Other

EQUIPMENT USED DURING CALIBRATION

MODEL: 500-2 SERIAL #: 132896 CAL DUE: 11/18/02
 MODEL: SERIAL #: CAL DUE:

AS FOUND DATA

Geotroplsm: SAT AF Instrument Condition: SAT AL Instrument Condition: SAT
 HIGH VOLTAGE AS FOUND HV AS LEFT HV New Batteries? AF Mechanical Zero: 0
 (+/- 10% tolerance) 500 V: 498 AF Threshold ratio: 100=10mV AL Mechanical Zero: 0
 1000 V: 1007 AF AF THRESHOLD: 35.3mV AF HV Reading: 895 V
 1500 V: 1511 AF AL THRESHOLD: 10.0mV AL HV Reading: 950 V

| SCALE | RATE CPM | AS FOUND | % ERROR | AS LEFT | % ERROR |
|-----------------------|----------|----------|---------|---------|---------|
| x.1 or x1 | 100 | 100 | 0.00% | AF | 0.00% |
| | 250 | 250 | 0.00% | AF | 0.00% |
| | 400 | 395 | 1.25% | AF | 1.25% |
| x1 or x10 | 1000 | 1000 | 0.00% | AF | 0.00% |
| | 2500 | 2500 | 0.00% | AF | 0.00% |
| | 4000 | 3950 | 1.25% | AF | 1.25% |
| x10 or x100 (x1000) | 10K | 10 | 0.00% | AF | 0.00% |
| | 25K | 25 | 0.00% | AF | 0.00% |
| | 40K | 39.5 | 1.25% | AF | 1.25% |
| x100 or x1000 (x1000) | 100K | 100 | 0.00% | AF | 0.00% |
| | 250K | 250 | 0.00% | AF | 0.00% |
| | 400K | 395 | 1.25% | AF | 1.25% |
| SCALER: | 250 | 250 | 0.00% | AF | 0.00% |

AF 200: 200 % ERROR: 0.00%
 AF 2000: 2000 % ERROR: 0.00%
 AF 20K: 19.5 K % ERROR: 2.50%
 AF 200K: 185 K % ERROR: 7.50%
 AL 200: AF % ERROR: 0.00%
 AL 2000: AF % ERROR: 0.00%
 AL 20K: AF K % ERROR: 2.50%
 AL 200K: AF K % ERROR: 7.50%

Is the As Found Data Within 20% of the Set Point?

Is the As Found Data Within 20% of the Set Point?

| | | | |
|----------------------|-------|-------|-------|
| x.1 or x1 Scale: | 250 | 250 | 250 |
| x1 or x10 Scale: | 2500 | 2500 | 2500 |
| x10 or x100 Scale: | 25 K | 25 K | 25 K |
| x100 or x1000 Scale: | 250 K | 250 K | 250 K |

Audio Response: SAT
 Audio Divide: SAT
 Push Buttons: SAT
 Lamp: SAT
 Scaler/Digital: SAT

Are the Individual Counts Within 10% of the Average?

Fast / Slow Response Function Properly?

Comments: Married as a set with: Model: 44-10 Serial #: PR186952
 Calibrated as a married set.

Does Instrument Meet Final Acceptance Criteria?

Calibration Sticker Attached?

Date Instrument Is Due For Next Calibration: 01/28/03

Performed by: Carl Hall
 Printed Name: Carl Hall

Reviewed by: [Signature] Date: 4/15/02

Entered In Computer Maintenance By: [Signature] Date: 4/2/02



Safety and Ecology Corporation
 2800 Solway Road
 Knoxville, TN 37931
Calibration Certificate

COPY

Calibration Certificate for 44-10, Serial # PR186956, Bar Code # , Property # SEC-5205

Date: 04/22/03 Date Last Cal. Expires: 04/03/03 Technician: Carl Hall
 Location: 9999, Reason For Calibration: Due for Calibration

EQUIPMENT USED DURING CALIBRATION

MODEL: 2221 SERIAL #: 168571 CAL DUE: 11/07/03
 MODEL: SERIAL #: CAL DUE:

NIST TRACEABLE SOURCES USED

| SOURCE | ISOTOPE | ACTIVITY | ASSAY DATE |
|--------------|---------|----------|------------|
| 99CS250-0288 | Cs-137 | 8.8 uCi | 3/18/1999 |

AS FOUND DATA

AF Instrument Condition: SAT AL Instrument Condition: SAT

Efficiency from Last Cal.: 0.68 % HV From Last Calibration: 950 V Calibration Threshold: 10 mV

| | <u>HV</u> | <u>Center Count</u> | <u>Background Count</u> | <u>Probe Efficiency</u> |
|-----------|-----------|---------------------|-------------------------|-------------------------|
| AS FOUND: | 950 V | 141122 | 4478 | Cs-137 0.70% |
| AS LEFT: | AF V | | | Cs-137 |

Is the As Found Efficiency Within 20% of the efficiency from the last cal.?

Reproducibility: Isotope: Cs-137 141086 141139 141102 Average: 141109

Are the individual counts within 10% of the average?

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PLATEAU AND SET POINT DATA (CPM)

| High Voltage | Source Response | Background | HV | CENTER | Background | Efficiency |
|--------------|-----------------|------------|----|--------|------------|------------|
| N/A | | | V | | | Cs-137 |
| | | | | | | |
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Comments: Married as a set with: Model: Serial #:

Does Instrument Meet Final Acceptance Criteria? Calibration Sticker Attached?

Date Instrument is Due For Next Calibration: 04/22/03

Performed by: Carl Hall Reviewed by: Carl Hall Date: 4/22/03

Printed Name: Carl Hall

Entered In Computer Inventory By: Carl Hall Date: 4/22/03