# Georgia Institute of Technology Research Reactor

# Final Survey Package 9

# Unaffected Asphalt and Concrete Yard Areas

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# Section 1

# Survey Package 9 Worksheet for the Unaffected Reactor Facility Yard

Duratek Inc.
Survey Package Worksheet for Non-Suspect Affected Reactor Facility Yard
Georgia Institute of Technology Research Reactor

| | |
|---|---|
| Package Identification No.: **09** | Prepared by: John McGehee/Paul Jones |
| Location: Yard | Date prepared: 06/29/2001 |
| Area Classification: ~~Non-Suspect Affected~~ Unaffected PJ 3/13/02 | |

## Area Description

Non-Suspect Affected Areas For The Reactor Facility Yard. The reactor facility yard surrounds the reactor containment building as depicted in the attached drawing Survey Package E09, Yard Non-Suspect Affected. The non-suspect affected yard area surrounds the reactor building and facility and includes asphalt paved areas that are included in this survey package. The non-suspect affected yard area occupies approximately 605 square meters of paved area at the facility. This area was not used for storage of radioactive material.

## Historical Information

No decontamination was required on the Non-Suspect Affected Reactor Facility Yard surfaces.

## General Survey Instructions

1) Ensure the area is gridded as shown on the grid map(s).
2) Perform a beta scan of 4 $m^2$ on the concrete or asphalt surfaces at each survey measurement location to identify any areas of elevated activity.
3) Obtain 1 direct beta measurement at each survey measurement location on the attached drawing.
4) Obtain 1 smear for removable beta and alpha contamination for each survey measurement location.
5) Obtain 1 exposure rate measurement at 1 meter above the surface at each survey measurement location.
6) Obtain a smear for H-3 analysis at each survey measurement location.

Use only the Package ID, L2, and L8 codes when labeling smears for counting.

Use all location codes provided below when taking fixed beta readings.

| Special Instructions |
|---|
| Source check meters to Tc-99 for beta measurements.<br><br>Use gas flow proportional detector model numbers 43-68 and 43-106 for surveys.<br><br>The direct beta, smears, and the exposure rate measurements should be taken in the center of each grid.<br><br>Verify that the MDA is less than 600dpm/100cm2 for direct beta measurements after obtaining initial background.<br><br>During scanning the detector is to be kept as close to the surface as possible and moved across the surface at a slow speed (scan speed shall not exceed one probe width per sec). The scan should be performed using the audible output and using headphones whenever necessary.<br><br>Use NaI(Tl) detector model number 44-2 for exposure rate measurements and source check meter to Cs-137 for survey. |

Survey performance (Initial and date as each survey is complete)

| Location Code | | | | | General Description | 4 m² Beta Scan | Direct Beta | 1 meter Gamma | Smear Gross α/β | LS Smear |
|---|---|---|---|---|---|---|---|---|---|---|
| L1 | L2 | L6 | L7 | L8 | | | | | | |
| Georgia Tech Research Reactor ~~2nd Floor Lower Walls and Floor~~ DJB 7-17-01 *NON SUSPECT AFF. YARD | | | | | | | | | | |
| E0900 | 01FE1 | B0002 or B0005 | NA | 1 thru 34 | Asphalt or Concrete Paved Areas | (34) 7-20-01 | (34) DJB 7-25-01 | (34) DJB 7-25-01 | (34) 8/1/01 | (34) 8/1/01 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

N A

*

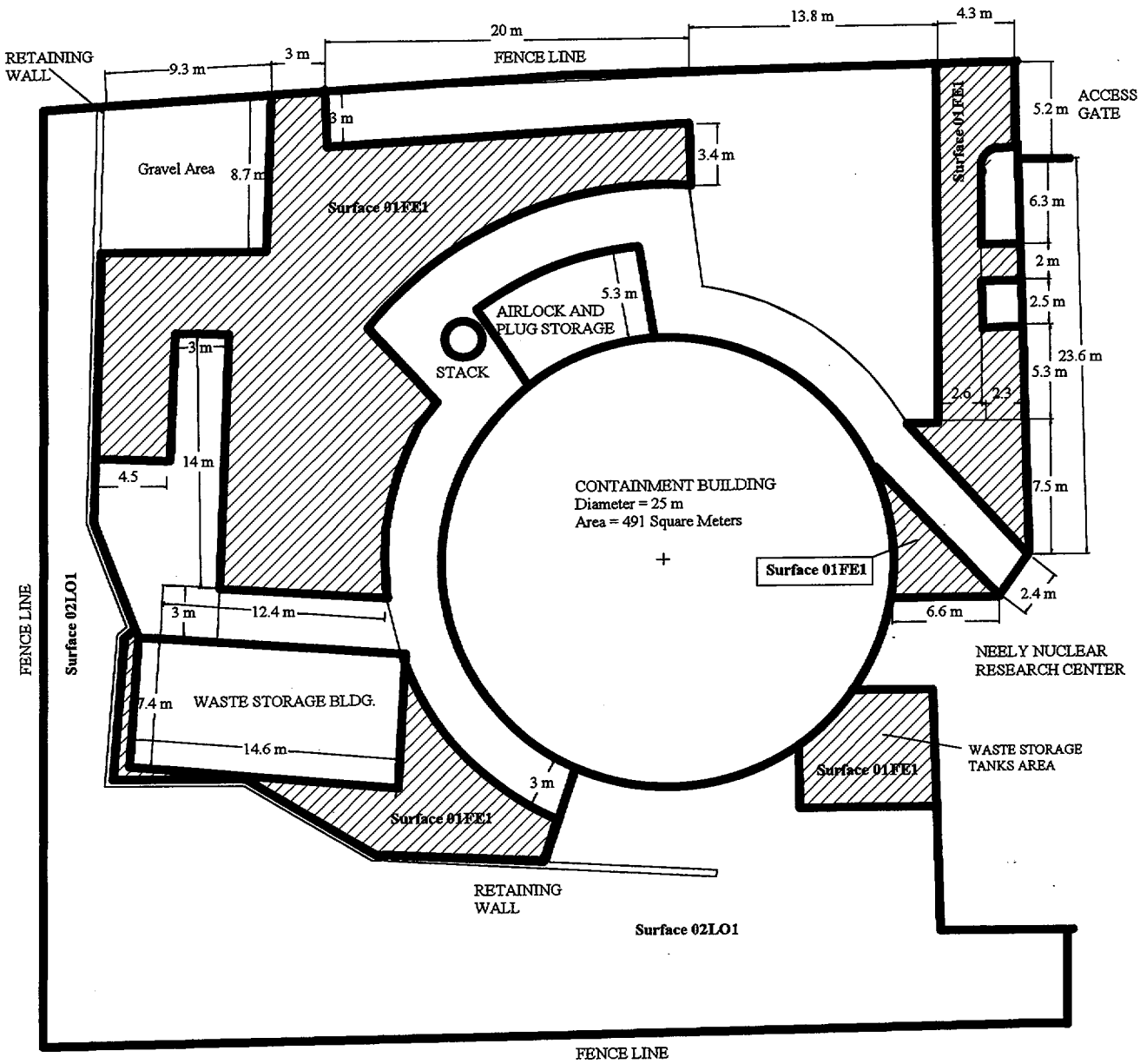
| Package Review | |
|---|---|
| Date Package Completed | 5/27/02 |
| Package Reviewed by and Date | [illegible] 5/27/02 |

| Survey Comments |
|---|
| * Classification changed to unaffected to assure compliance with Final Survey Plan. P. Jones 3/13/02 |

# Section 2

# Package 9
# Yard Unaffected Area Drawings

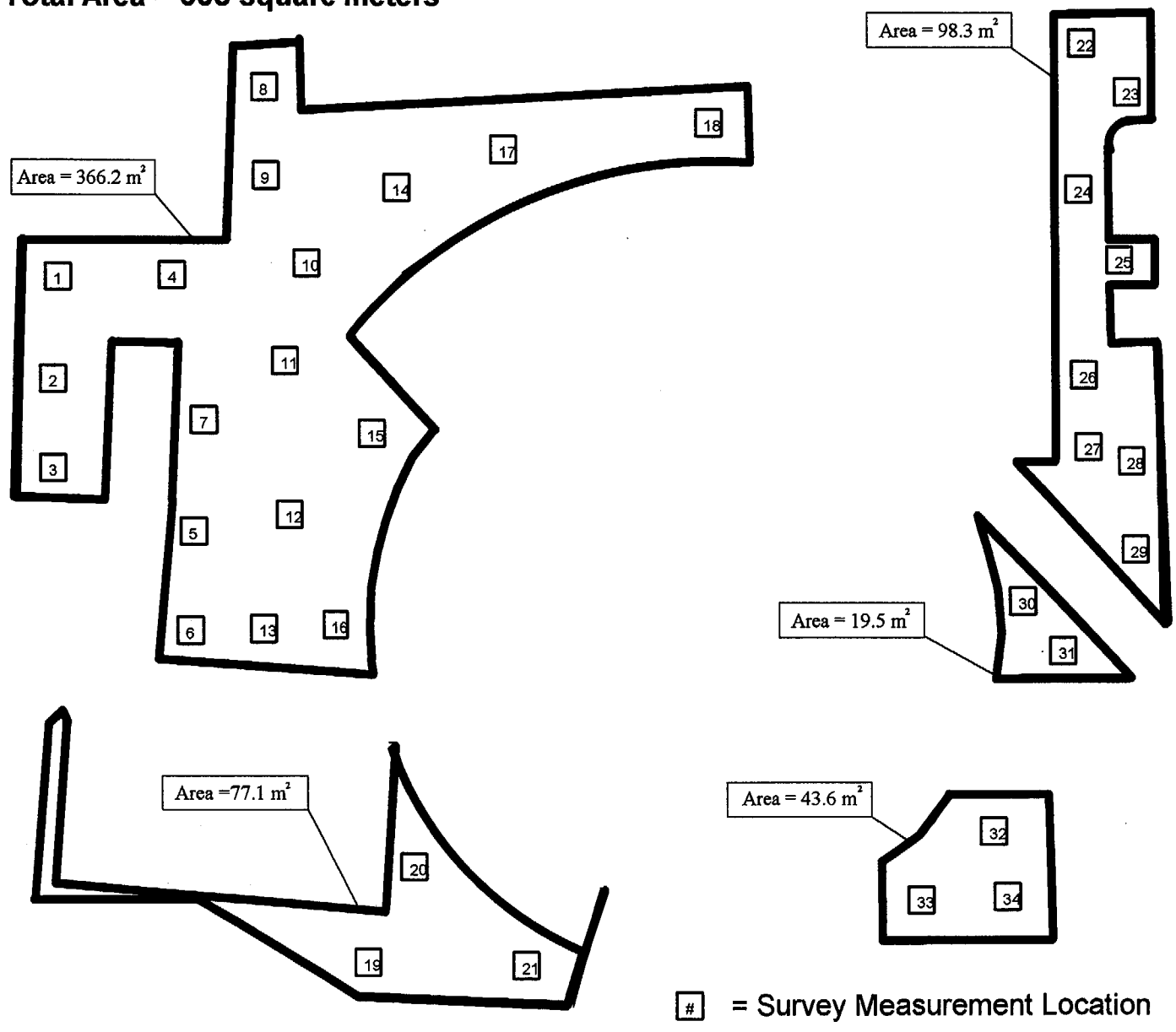
**Georgia Institute of Technology Research Reactor**
**Final Status Survey**
**Survey Package E09, Yard ~~Non-Suspect Affected~~ Unaffected Areas**
P. Jones 3/13/02




= ~~Non-Suspect Affected~~ Unaffected Areas
P. Jones 3/13/02

North →

**Georgia Institute of Technology Research Reactor**
**Final Status Survey**
**Survey Package E09, Yard ~~Non-Suspect Affected~~** Unaffected P.J.O 3/13/02
**Surface 01FE1**
**Total Area = 605 square meters**



# Section 3

# Package 9
# Direct Beta Survey Report for the Unaffected Areas of Yard (including download reports)

Package E0900 Fixed Beta Survey Report ~~(Non-Support Affected~~ Unaffected Areas of Yard)

P. Jones 3/13/02

| Desc. | File | Sample Number | Gross Counts | Count Time (sec) | Material Type | Detector Area ($cm^2$) | Surface | Count Type | Row | Location | Efficiency (dpm/cpm) | Background (cpm) | Activity ($dpm/100cm^2$) | Natural Background ($dpm/100cm^2$) | Net Activity ($dpm/100cm^2$) | MDA ($dpm/100cm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 205 | 5 | 405 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00001 | 0.215 | 489 | 1185 | 1172 | 13 | 520 |
| | 205 | 6 | 410 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00002 | 0.215 | 489 | 1222 | 1172 | 50 | 520 |
| | 205 | 7 | 374 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00003 | 0.215 | 489 | 956 | 1172 | -216 | 520 |
| | 205 | 8 | 354 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00004 | 0.215 | 489 | 808 | 1172 | -364 | 520 |
| | 205 | 9 | 304 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00005 | 0.215 | 489 | 439 | 1172 | -733 | 520 |
| | 205 | 10 | 329 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00006 | 0.215 | 489 | 624 | 1172 | -548 | 520 |
| | 205 | 11 | 320 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00007 | 0.215 | 489 | 557 | 1172 | -615 | 520 |
| | 205 | 12 | 395 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00008 | 0.215 | 489 | 1111 | 1172 | -61 | 520 |
| | 205 | 13 | 354 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00009 | 0.215 | 489 | 808 | 1172 | -364 | 520 |
| | 205 | 14 | 362 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00010 | 0.215 | 489 | 867 | 1172 | -305 | 520 |
| | 205 | 15 | 395 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00011 | 0.215 | 489 | 1111 | 1172 | -61 | 520 |
| | 205 | 16 | 416 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00012 | 0.215 | 489 | 1266 | 1172 | 94 | 520 |
| | 205 | 17 | 373 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00013 | 0.215 | 489 | 949 | 1172 | -223 | 520 |
| | 205 | 20 | 375 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00014 | 0.215 | 489 | 963 | 1172 | -209 | 520 |
| | 205 | 19 | 380 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00015 | 0.215 | 489 | 1000 | 1172 | -172 | 520 |
| | 205 | 18 | 349 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00016 | 0.215 | 489 | 772 | 1172 | -400 | 520 |
| | 205 | 21 | 377 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00017 | 0.215 | 489 | 978 | 1172 | -194 | 520 |
| | 205 | 22 | 391 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00018 | 0.215 | 489 | 1082 | 1172 | -90 | 520 |
| | 205 | 33 | 329 | 30 | B0002 | 126 | 01FE1 | FLDCT | ZZZZZ | 00019 | 0.215 | 489 | 624 | 354 | 270 | 446 |
| | 205 | 34 | 357 | 30 | B0002 | 126 | 01FE1 | FLDCT | ZZZZZ | 00020 | 0.215 | 489 | 831 | 354 | 477 | 446 |
| | 205 | 35 | 306 | 30 | B0002 | 126 | 01FE1 | FLDCT | ZZZZZ | 00021 | 0.215 | 489 | 454 | 354 | 100 | 446 |
| | 205 | 23 | 465 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00022 | 0.215 | 489 | 1628 | 1172 | 456 | 520 |
| | 205 | 24 | 356 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00023 | 0.215 | 489 | 823 | 1172 | -349 | 520 |
| | 205 | 25 | 399 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00024 | 0.215 | 489 | 1141 | 1172 | -31 | 520 |
| | 205 | 28 | 347 | 30 | B0002 | 126 | 01FE1 | FLDCT | ZZZZZ | 00025 | 0.215 | 489 | 757 | 354 | 403 | 446 |
| | 205 | 26 | 427 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00026 | 0.215 | 489 | 1347 | 1172 | 175 | 520 |
| | 205 | 27 | 386 | 30 | B0005 | 126 | 01FE1 | FLDCT | ZZZZZ | 00027 | 0.215 | 489 | 1045 | 1172 | -127 | 520 |
| | 205 | 29 | 354 | 30 | B0002 | 126 | 01FE1 | FLDCT | ZZZZZ | 00028 | 0.215 | 489 | 808 | 354 | 454 | 446 |
| | 229 | 30 | 718 | 60 | B0002 | 126 | 01FE1 | FLDCT | ZZZZZ | 00029 | 0.214 | 514 | 757 | 354 | 403 | 326 |
| | 229 | 31 | 735 | 60 | B0002 | 126 | 01FE1 | FLDCT | ZZZZZ | 00030 | 0.214 | 480 | 946 | 354 | 592 | 317 |
| | 229 | 32 | 759 | 60 | B0002 | 126 | 01FE1 | FLDCT | ZZZZZ | 00031 | 0.214 | 503 | 949 | 354 | 595 | 323 |
| | 205 | 36 | 355 | 30 | B0002 | 126 | 01FE1 | FLDCT | ZZZZZ | 00032 | 0.215 | 489 | 816 | 354 | 462 | 446 |
| | 229 | 37 | 617 | 60 | B0002 | 126 | 01FE1 | FLDCT | ZZZZZ | 00033 | 0.214 | 456 | 597 | 354 | 243 | 311 |
| | 205 | 38 | 349 | 30 | B0002 | 126 | 01FE1 | FLDCT | ZZZZZ | 00034 | 0.215 | 489 | 772 | 354 | 418 | 446 |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | # Measurements | | 34 | |
| | | | | | | | | | | | | | | Average | 4 | dpm/100cm² |
| | | | | | | | | | | | | | | Maximum | 595 | dpm/100cm² |
| | | | | | | | | | | | | | | STD DEV | 357 | dpm/100cm² |
| | | | | | | | | | | | | | 95% CL on Mean | | 124 | dpm/100cm² |

The "net activity" (dpm/100 $cm^2$) presented on the following download report is raw data. It has not been corrected, if required, for the natural radioactivity that may be present in materials of construction. In addition the background used to correct for ambient exposure rates, instrument noise, etc. may need to be adjusted if more than one surface type was included in the download.

See the enclosed spreadsheets for the corrected results.

File #205

## ATTACHMENT 6.14
## SURVEY DOWNLOAD DATA SHEET

Download Technician: Print Name: D. Schumacher Signature: [signature] Station: 2 File: 205

Serial No. Verification: Model 2350: ☐ Detector: ☐ Problems: ☐ (See Comments)

Survey Technician(s):
Print Name: D. Schumacher User ID DPS4133 Signature: [signature] Date: 7/28/01

Print Name: _____ User ID _____ Signature: _____ Date: _____

Survey Unit Description: E0900: RX YARD
*(Example: Survey Package + description i.e. D16, Building 43, Area 09, Room 100, Floor - Grid Locations A1 through A7)*

Instrument Model and Serial No.: Model 2350 ☐ Model 2350-1 ☑: 129433

Instrument and Detector Calibration Due Dates: Survey Meter: 10-24-01 Detector: 12-21-01

Type Of Survey: ☑ Term Survey ☐ Characterization ☐ Information Only
☐ Other (explain):

| Type of Measurement | Detector Serial Number | Detector Model Number | Detector Efficiency | Source Mean BKG Value | Pre & Post Use Info | |
|---|---|---|---|---|---|---|
| | | | | | Pre File No. | Post File No. |
| ☐ Beta β | | 43-106B | | | | |
| ☒ Beta β | 095085 | 43-68B | .215 | 5408/414 | 205 | 205 |
| ☐ Alpha α | | 43-68A | | | | |
| ☐ Gamma γ | | 44-2 | N/A | | | |
| | | | | | | |

Local Area Background Measurements — MEAN Value in cpm

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| β Beta | 1 4906 | 2 4700 | 3 4842 | 4 5241 | 5 4938 | 6 4703 | 489 |
| α Alpha | 1 | 2 | 3 | 4 | 5 | 6 | |

COMMENTS: _____

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

Direct Beta Survey Report, dpm/100 cm2

| | | | |
|---|---|---|---|
| File Number: 205 | Survey Description: E0900: RX YARD | | |
| Survey Reason: TERMINATION | User ID: DPS4133 | Technician name: Don Schumaker | |
| Instrument Model: 2350-1 | S/N: 129433 | Calibration Due: 10/24/01 | Group: 2 |
| Detector Model: 43-68 | Detector S/N: 095080 | Type: 126 cm2 Gas Proportional Detector | |
| Background: 489 cpm | Beta Efficiency: .215 | | Survey Date: 7/24/01 |

Pre and Post source checks are included on this download: Yes ✓ No ____
If No is answered, then list the Download Files which include the Pre and Post source checks.
Pre File #: _____ Post File #: _____

Technician Review:

I have reveiwed this cover sheet and 2 pages of the report, 1 pages of comments, and 1 graph.

I performed this survey: Don Schumaker / [signature] Date: 7/24/01
Print name Signature

and,

I performed this survey: _____ / _____ Date: _____
Print name Signature

Corrections and Reasons:

Comment Resolution:

Survey Reviewed and Approved by: Paul Jones / [signature] Date: 7/31/01
Print name Signature

Survey Date: 7/24/01 Report Date: 7/24/01 Page: 1
File: 205 Station: 2

Comments

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 0 |
|---|---|---|---|---|---|
| | E0900 | 01FE1 | TAT01 | 02200 | Det Cal Due: 12/21/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| FLDBK | B0005 | ZZZZZ | 00000 | 4 | 600 | 4906 | 6 | |
| FLDBK | B0002 | ZZZZZ | 00000 | 39 | 600 | 5241 | 130 | |
| FLDBK | B0002 | ZZZZZ | 00000 | 40 | 600 | 4938 | 18 | |
| FLDBK | B0005 | ZZZZZ | 00000 | 41 | 600 | 4700 | -70 | |
| FLDBK | B0005 | ZZZZZ | 00000 | 42 | 600 | 4842 | -18 | |
| FLDBK | B0002 | ZZZZZ | 00000 | 43 | 600 | 4703 | -69 | |
| | | | | | | Group Average: | -1 | |
| FLDCT | B0005 | ZZZZZ | 00001 | 5 | 30 | 405 | 1185 | * |
| FLDCT | B0005 | ZZZZZ | 00002 | 6 | 30 | 410 | 1222 | * |
| FLDCT | B0005 | ZZZZZ | 00003 | 7 | 30 | 374 | 956 | * |
| FLDCT | B0005 | ZZZZZ | 00004 | 8 | 30 | 354 | 808 | * |
| FLDCT | B0005 | ZZZZZ | 00005 | 9 | 30 | 304 | 439 | |
| FLDCT | B0005 | ZZZZZ | 00006 | 10 | 30 | 329 | 624 | * |
| FLDCT | B0005 | ZZZZZ | 00007 | 11 | 30 | 320 | 557 | |
| FLDCT | B0005 | ZZZZZ | 00008 | 12 | 30 | 395 | 1111 | * |
| FLDCT | B0005 | ZZZZZ | 00009 | 13 | 30 | 354 | 808 | * |
| FLDCT | B0005 | ZZZZZ | 00010 | 14 | 30 | 362 | 867 | * |
| FLDCT | B0005 | ZZZZZ | 00011 | 15 | 30 | 395 | 1111 | * |
| FLDCT | B0005 | ZZZZZ | 00012 | 16 | 30 | 416 | 1266 | * |
| FLDCT | B0005 | ZZZZZ | 00013 | 17 | 30 | 373 | 949 | * |
| FLDCT | B0005 | ZZZZZ | 00016 | 18 | 30 | 349 | 772 | * |
| FLDCT | B0005 | ZZZZZ | 00015 | 19 | 30 | 380 | 1000 | * |
| FLDCT | B0005 | ZZZZZ | 00014 | 20 | 30 | 375 | 963 | * |
| FLDCT | B0005 | ZZZZZ | 00017 | 21 | 30 | 377 | 978 | * |
| FLDCT | B0005 | ZZZZZ | 00018 | 22 | 30 | 391 | 1082 | * |
| FLDCT | B0005 | ZZZZZ | 00022 | 23 | 30 | 465 | 1628 | * |
| FLDCT | B0005 | ZZZZZ | 00023 | 24 | 30 | 356 | 823 | * |
| FLDCT | B0005 | ZZZZZ | 00024 | 25 | 30 | 399 | 1141 | * |
| FLDCT | B0005 | ZZZZZ | 00026 | 26 | 30 | 427 | 1347 | * |
| FLDCT | B0005 | ZZZZZ | 00027 | 27 | 30 | 386 | 1045 | * |
| FLDCT | B0002 | ZZZZZ | 00025 | 28 | 30 | 347 | 757 | * |
| FLDCT | B0002 | ZZZZZ | 00028 | 29 | 30 | 354 | 808 | * |
| FLDCT | B0002 | ZZZZZ | 00019 | 33 | 30 | 329 | 624 | * |
| FLDCT | B0002 | ZZZZZ | 00020 | 34 | 30 | 357 | 831 | * |
| FLDCT | B0002 | ZZZZZ | 00021 | 35 | 30 | 306 | 454 | |
| FLDCT | B0002 | ZZZZZ | 00032 | 36 | 30 | 355 | 816 | * |
| FLDCT | B0002 | ZZZZZ | 00034 | 38 | 30 | 349 | 772 | * |
| | | | | | | Group Average: | 925 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 0 |
|---|---|---|---|---|---|
| | ZZZZZ | EZ260 | TAT01 | 02200 | Det Cal Due: 12/21/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PRB00 | ZZZZZ | ZZZZZ | 00000 | 1 | 60 | 5749 | 19417 | * |
| PRB00 | ZZZZZ | ZZZZZ | 00000 | 2 | 60 | 5916 | 20033 | * |
| PRB00 | ZZZZZ | ZZZZZ | 00000 | 3 | 60 | 5800 | 19605 | * |
| | | | | | | Group Average: | 19685 | |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 45 | 60 | 5975 | 20251 | * |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 46 | 60 | 5944 | 20137 | * |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 47 | 60 | 5850 | 19790 | * |
| | | | | | | Group Average: | 20059 | |

* Hi flag set at 600 dpm/100 cm2

Survey Date: 7/24/01 Report Date: 7/24/01 Page: 2
File: 205 Station: 2

Comments

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 0 |
|---|---|---|---|---|---|
| | ZZZZZ | ZZZZZ | TAT01 | 02200 | Det Cal Due: 12/21/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PRBBK | ZZZZZ | ZZZZZ | 00000 | 0 | 600 | 4144 | -275 | |
| | | | | | | Group Average: | -275 | |
| PTBBK | ZZZZZ | ZZZZZ | 00000 | 44 | 600 | 4052 | -309 | |
| | | | | | | Group Average: | -309 | |

Total Number of Measurements on this Report: 44

NOTE: This report is grouped by:
Package (L1) (Package number)
Setup number (Detector parameters)
Det Type (L4) (GM pancake-flat surface, Beta 3.5-12" pipe, gamma at 1 m, etc.)
Reason (L3-345) (Char survey, source check, final survey, etc.)
Surface Cat (L2) (Wall, floor, drain, penetration, etc.)
Count Type (L5) (Field count, bkg, pre-, post-, etc.)
Bkgd Sub (L6) (Material code, i.e., wood, iron, concr, etc.)



* Hi flag set at 600 dpm/100 cm2

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7/24/01 Comments Report for File 205 Station: 2

| Comment Number | Comment |
|---|---|
| 1 | Deleted sample numbers from 30, 31, 32, AND 37 BECAUSE THESE GRIDS CONAINED SOME DEBRIS ON GROUND WHEN PERFORMING FINAL SURVEY. |

GTS:0143 :C:\PDOX35\M2350\COMMENTS:R1

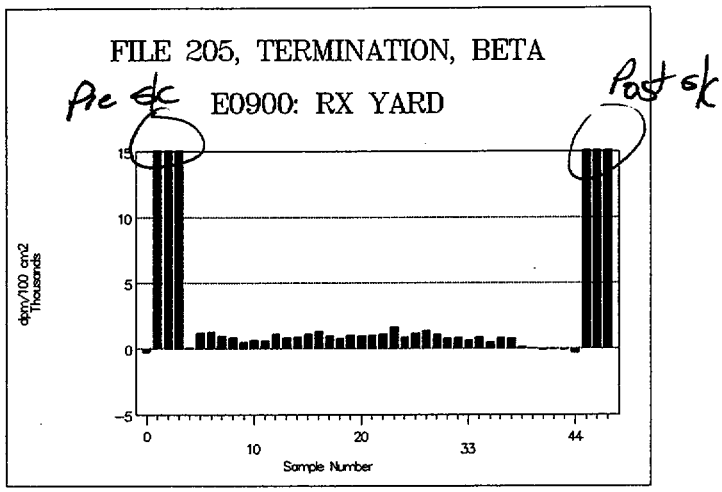
GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

7/24/2001 Graph of File 205 Station: 2

Survey Date: 7/24/2001 Survey Start Time: 08:19:04

Description: E0900: RX YARD




Flag set for 600 dpm/100 cm2. Review values greater than this value.

Review this graph for visual outliers.

Mark outliers, source checks and backgrounds on the graph on this page.

The "net activity" (dpm/100 $cm^2$) presented on the following download report is raw data. It has not been corrected, if required, for the natural radioactivity that may be present in materials of construction. In addition the background used to correct for ambient exposure rates, instrument noise, etc. may need to be adjusted if more than one surface type was included in the download.

See the enclosed spreadsheets for the corrected results.

File #229

ATTACHMENT 6.14
SURVEY DOWNLOAD DATA SHEET

Download Technician: Print Name: PAUL JONES Signature: [signature] Station: 2 File: 229
Serial No. Verification: Model 2350: ☐ Detector: ☑ Problems: ☐ (See Comments)

Survey Technician(s):
Print Name: BSKjos User ID BSK0490 Signature: [signature] Date: 11-21-01

Print Name: _____ User ID _____ Signature: _____ Date: _____

Survey Unit Description: ED900 YARD Non-Sasport Affected
*(Example: Survey Package + description i.e. D16, Building 43, Area 09, Room 100, Floor - Grid Locations A1 through A7)*

Instrument Model and Serial No.: Model 2350 ☐ Model 2350-1 ☑: 129429

Instrument and Detector Calibration Due Dates: Survey Meter: 12-6-01 Detector: 12-21-01

Type Of Survey: ☑ Term Survey ☐ Characterization ☐ Information Only
☐ Other (explain):

| Type of Measurement | Detector Serial Number | Detector Model Number | Detector Efficiency | Source Mean BKG Value | Pre & Post Use Info | |
|---|---|---|---|---|---|---|
| | | | | | Pre File No. | Post File No. |
| ☐ Beta β | | 43-106B | | | | |
| ☑ Beta β | 095080 | 43-68B | .214 | 5394/429 | 229 | 229 |
| ☐ Alpha α | | 43-68A | | | | |
| ☐ Gamma γ | | 44-2 | N/A | | | |
| | | | | | | |

Local Area Background Measurements — MEAN Value in cpm ↓

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| β Beta | 1 | 2 | 3 | 4 | 5 | 6 | 303 |
| α Alpha | 1 | 2 | 3 | 4 | 5 | 6 | |

COMMENTS: Delete sample # 0-67; 72-128. These samples On d. loads 223-228.

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

Direct Beta Survey Report, dpm/100 cm2

| | | | |
|---|---|---|---|
| File Number: 229 | Survey Description: E0900 Yard Non-suspect Affected | | |
| Survey Reason: TERMINATION | User ID: BSK0490 | Technician name: B.S. Kjos | |
| Instrument Model: 2350-1 | S/N: 129429 | Calibration Due: 12/06/01 | Group: 2 |
| Detector Model: 43-68 | Detector S/N: 095080 | Type: 126 cm2 gas flow proportional | |
| Background: 303 cpm | Beta Efficiency: .214 | | Survey Date: 11/16/01 |

Pre and Post source checks are included on this download: Yes ✓ No ____
If No is answered, then list the Download Files which include the Pre and Post source checks.
Pre File #: _____ Post File #: _____

Technician Review:

I have reveiwed this cover sheet and 1 pages of the report, 1 pages of comments, and 1 graph.

I performed this survey: Betty S. Kjos / BSKjos Date: 11-28-01
Print name Signature

and,

I performed this survey: _____ / _____ Date: _____
Print name Signature

Corrections and Reasons:

Comment Resolution:

Survey Reviewed and Approved by: PAUL JONES / Paul Jones Date: 11/29/01
Print name Signature

Survey Date: 11/16/01 Report Date: 11/28/01 Page: 1
File: 229 Station: 2

Comments

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 4 |
|---|---|---|---|---|---|
| | E0900 | 01FE1 | TAT01 | 02200 | Det Cal Due: 12/21/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| FLDBK | ZZZZZ | ZZZZZ | 00029 | 129 | 60 | 514 | 780 | |
| FLDBK | ZZZZZ | ZZZZZ | 00030 | 131 | 60 | 480 | 654 | |
| FLDBK | ZZZZZ | ZZZZZ | 00031 | 133 | 60 | 503 | 739 | |
| FLDBK | ZZZZZ | ZZZZZ | 00033 | 135 | 60 | 456 | 566 | |
| | | | | | | Group Average: | 685 | |
| FLDCT | ZZZZZ | ZZZZZ | 00029 | 130 | 60 | 718 | 1534 | |
| FLDCT | ZZZZZ | ZZZZZ | 00030 | 132 | 60 | 735 | 1597 | |
| FLDCT | ZZZZZ | ZZZZZ | 00031 | 134 | 60 | 759 | 1686 | |
| FLDCT | ZZZZZ | ZZZZZ | 00033 | 136 | 60 | 617 | 1161 | |
| | | | | | | Group Average: | 1494 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 4 |
|---|---|---|---|---|---|
| | ZZZZZ | EZ260 | TAT01 | 02200 | Det Cal Due: 12/21/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PRB00 | ZZZZZ | ZZZZZ | 00000 | 69 | 60 | 5947 | 20863 | * |
| PRB00 | ZZZZZ | ZZZZZ | 00000 | 70 | 60 | 6054 | 21259 | * |
| PRB00 | ZZZZZ | ZZZZZ | 00000 | 71 | 60 | 5828 | 20423 | * |
| | | | | | | Group Average: | 20849 | |
| PRBBK | ZZZZZ | ZZZZZ | 00000 | 68 | 600 | 4306 | 472 | |
| | | | | | | Group Average: | 472 | |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 138 | 60 | 5913 | 20738 | * |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 139 | 60 | 5871 | 20582 | * |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 140 | 60 | 5703 | 19961 | * |
| | | | | | | Group Average: | 20427 | |
| PTBBK | ZZZZZ | ZZZZZ | 00000 | 137 | 600 | 4292 | 467 | |
| | | | | | | Group Average: | 467 | |

Total Number of Measurements on this Report: 16

NOTE: This report is grouped by:
Package (L1) (Package number)
Setup number (Detector parameters)
Det Type (L4) (GM pancake-flat surface, Beta 3.5-12" pipe, gamma at 1 m, etc.)
Reason (L3-345) (Char survey, source check, final survey, etc.)
Surface Cat (L2) (Wall, floor, drain, penetration, etc.)
Count Type (L5) (Field count, bkg, pre-, post-, etc.)
Bkgd Sub (L6) (Material code, i.e., wood, iron, concr, etc.)



* Hi flag set at 2400 dpm/100 cm2

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

11/28/01 Comments Report for File 229 Station: 2

| Comment Number | Comment |
|---|---|
| 1 | Deleted sample numbers from 0 to 67, 72-128. These sample points on downloads #223-228. |

GTS:0143 :C:\PDOX35\M2350\COMMENTS:R1

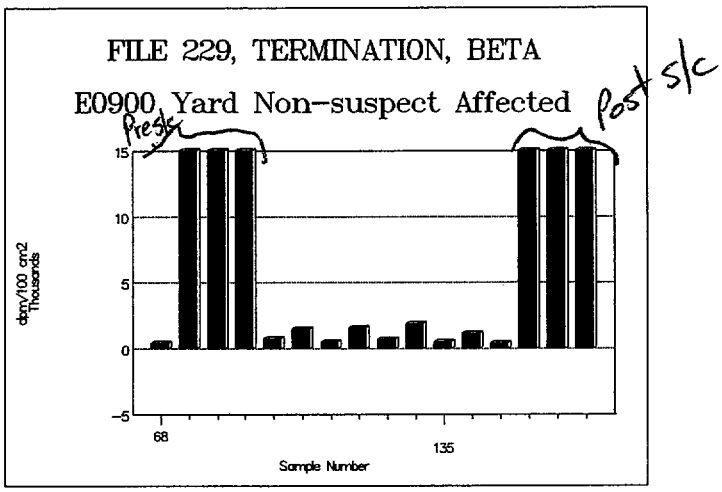
GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

11/28/2001 Graph of File 229 Station: 2

Survey Date: 11/16/2001 Survey Start Time: 16:01:20

Description: E0900 Yard Non-suspect Affected




Flag set for 2400 dpm/100 cm2. Review values greater than this value.

Review this graph for visual outliers.

Mark outliers, source checks and backgrounds on the graph on this page.

# Section 4

# Package 9
# Exposure Rate Measurements for the Unaffected Yard Areas

Package 9 Exposure Rate Measurement Summary

| | Desc. | File | Sample Number | Gross Counts | Count Time (sec) | Material Type | Surface | Row | Location | Detector Cal. Constant (C/hr)/(R/hr) | Exposure Rate (μR/hr) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Pkg 9 | 01FE1 | 207 | 0 | 613 | 10 | B0005 | 01FE1 | ZZZZZ | 00001 | 1.70095E+10 | 13.0 |
| | | 207 | 1 | 565 | 10 | B0005 | 01FE1 | ZZZZZ | 00002 | 1.70095E+10 | 12.0 |
| | | 207 | 2 | 497 | 10 | B0005 | 01FE1 | ZZZZZ | 00003 | 1.70095E+10 | 10.5 |
| | | 207 | 3 | 515 | 10 | B0005 | 01FE1 | ZZZZZ | 00004 | 1.70095E+10 | 10.9 |
| | | 207 | 4 | 541 | 10 | B0005 | 01FE1 | ZZZZZ | 00005 | 1.70095E+10 | 11.5 |
| | | 207 | 5 | 519 | 10 | B0005 | 01FE1 | ZZZZZ | 00006 | 1.70095E+10 | 11.0 |
| | | 207 | 6 | 492 | 10 | B0005 | 01FE1 | ZZZZZ | 00007 | 1.70095E+10 | 10.4 |
| | | 207 | 7 | 544 | 10 | B0005 | 01FE1 | ZZZZZ | 00008 | 1.70095E+10 | 11.5 |
| | | 207 | 8 | 519 | 10 | B0005 | 01FE1 | ZZZZZ | 00009 | 1.70095E+10 | 11.0 |
| | | 207 | 9 | 571 | 10 | B0005 | 01FE1 | ZZZZZ | 00010 | 1.70095E+10 | 12.1 |
| | | 207 | 10 | 526 | 10 | B0005 | 01FE1 | ZZZZZ | 00011 | 1.70095E+10 | 11.1 |
| | | 207 | 11 | 548 | 10 | B0005 | 01FE1 | ZZZZZ | 00012 | 1.70095E+10 | 11.6 |
| | | 207 | 12 | 517 | 10 | B0005 | 01FE1 | ZZZZZ | 00013 | 1.70095E+10 | 10.9 |
| | | 207 | 13 | 572 | 10 | B0005 | 01FE1 | ZZZZZ | 00014 | 1.70095E+10 | 12.1 |
| | | 207 | 14 | 533 | 10 | B0005 | 01FE1 | ZZZZZ | 00015 | 1.70095E+10 | 11.3 |
| | | 207 | 15 | 541 | 10 | B0005 | 01FE1 | ZZZZZ | 00016 | 1.70095E+10 | 11.5 |
| | | 207 | 16 | 596 | 10 | B0005 | 01FE1 | ZZZZZ | 00017 | 1.70095E+10 | 12.6 |
| | | 207 | 17 | 545 | 10 | B0005 | 01FE1 | ZZZZZ | 00018 | 1.70095E+10 | 11.5 |
| | | 207 | 18 | 566 | 10 | B0005 | 01FE1 | ZZZZZ | 00022 | 1.70095E+10 | 12.0 |
| | | 207 | 19 | 516 | 10 | B0005 | 01FE1 | ZZZZZ | 00023 | 1.70095E+10 | 10.9 |
| | | 207 | 20 | 610 | 10 | B0005 | 01FE1 | ZZZZZ | 00024 | 1.70095E+10 | 12.9 |
| | | 207 | 21 | 567 | 10 | B0005 | 01FE1 | ZZZZZ | 00026 | 1.70095E+10 | 12.0 |
| | | 207 | 22 | 485 | 10 | B0005 | 01FE1 | ZZZZZ | 00027 | 1.70095E+10 | 10.3 |
| | | 207 | 23 | 618 | 10 | B0002 | 01FE1 | ZZZZZ | 00025 | 1.70095E+10 | 13.1 |
| | | 207 | 24 | 645 | 10 | B0002 | 01FE1 | ZZZZZ | 00028 | 1.70095E+10 | 13.7 |
| | | 207 | 25 | 562 | 10 | B0002 | 01FE1 | ZZZZZ | 00029 | 1.70095E+10 | 11.9 |
| | | 207 | 26 | 501 | 10 | B0002 | 01FE1 | ZZZZZ | 00030 | 1.70095E+10 | 10.6 |
| | | 207 | 27 | 698 | 10 | B0002 | 01FE1 | ZZZZZ | 00031 | 1.70095E+10 | 14.8 |
| | | 207 | 28 | 678 | 10 | B0002 | 01FE1 | ZZZZZ | 00019 | 1.70095E+10 | 14.3 |
| | | 207 | 29 | 512 | 10 | B0002 | 01FE1 | ZZZZZ | 00020 | 1.70095E+10 | 10.8 |
| | | 207 | 30 | 505 | 10 | B0002 | 01FE1 | ZZZZZ | 00021 | 1.70095E+10 | 10.7 |
| | | 207 | 31 | 767 | 10 | B0002 | 01FE1 | ZZZZZ | 00032 | 1.70095E+10 | 16.2 |
| | | 207 | 32 | 552 | 10 | B0002 | 01FE1 | ZZZZZ | 00033 | 1.70095E+10 | 11.7 |
| | | 207 | 33 | 686 | 10 | B0002 | 01FE1 | ZZZZZ | 00034 | 1.70095E+10 | 14.5 |
| | | | | | | | | | | | |
| | | | | Package 9 Gross Measureement Statistics | | | | | | # Measurements | 34 |
| | | | | | | | | | | Mean | 12.0 |
| | | | | | | | | | | Maximum | 16.2 |
| | | | | | | | | | | STD DEV | 1.4 |
| | | | | | | | | | | Mean + 2 x Std Dev | 14.7 |
| | | | | | | | | | | 95% CL on Mean | 12.4 |
| | | | | | | | | | | | |
| | | | | | | | | | | +2 STD | 14.7 |
| | | | | | | | | | | | |

## ATTACHMENT 6.14
## SURVEY DOWNLOAD DATA SHEET

Download Technician: Print Name: Paul Jones Signature: [signature] Station: 2 File: 227

Serial No. Verification: Model 2350: ☑ Detector: ☑ Problems: ☐ (See Comments)

Survey Technician(s):
Print Name: BS Kjos User ID BSK0490 Signature: [signature] Date: 11-21-01

Print Name: _____ User ID _____ Signature: _____ Date: _____

Survey Unit Description: E0900, YARD Non-Suspect Affected
(Example: Survey Package + description i.e. D16, Building 43, Area 09, Room 100, Floor - Grid Locations A1 through A7)

Instrument Model and Serial No.: Model 2350 ☐ Model 2350-1 ☑: 129429

Instrument and Detector Calibration Due Dates: Survey Meter: 12-6-01 Detector: 2-3-02

Type Of Survey: ☑ Term Survey ☐ Characterization ☐ Information Only ☐ Other (explain):

| Type of Measurement | Detector Serial Number | Detector Model Number | Detector Efficiency | Source Mean BKG Value | Pre & Post Use Info | |
|---|---|---|---|---|---|---|
| | | | | | Pre File No. | Post File No. |
| ☐ Beta β | | 43-106B | | | | |
| ☐ Beta β | | 43-68B | | | | |
| ☐ Alpha α | | 43-68A | | | | |
| ☑ Gamma γ | 121806 | 44-2 | N/A | N/A | 227 | 227 |
| | | | | | | |

Local Area Background Measurements — MEAN Value in cpm !

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| β Beta | 1 | 2 | 3 | 4 | 5 | 6 | |
| α Alpha | 1 | 2 | 3 | 4 | 5 | 6 | |

COMMENTS: Delete sample # 0-81, 86-105, 107-123, 129-140.
On downloads # 223-226; 228 contain these results
Chg. L6 code to B0002; entered incorrectly, sample # 106
chg. L5 code to PT600 for sample 126-128; entered incorrectly.
delete sample 125 taken in error.

This data point repeated to assure that detector was at least 1 meter away from wall(s).

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

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Gamma Radiation Survey Report, Micro-R/hour - Integrated Measurement

| | | | |
|---|---|---|---|
| File Number: 227 | Survey Description: E0900 YARD | | |
| Survey Reason: TERMINATION | User ID: BSK0490 | Technician name: B.S. Kjos | |
| Instrument Model: 2350-1 | S/N: 129429 | Calibration Due: 12/06/01 | Group: 2 |
| Detector Model: 44-2 | Detector S/N: 121806 | Type: High Energy Gamma Scintillator, 1x1 NaI | |
| Background: 0.0 uR/hr | Gamma Calibration Constant: 1.69941 E10 c/R | PIC ratio: 1.000 (PIC/NaI) | Survey Date: 11/16/01 |

Pre and Post source checks are included on this download: Yes ✓ No ____
If No is answered, then list the Download Files which include the Pre and Post source checks.
Pre File #: _____ Post File #: _____

Technician Review:

I have reveiwed this cover sheet and 2 pages of the report, 1 pages of comments, and 1 graph.

I performed this survey: Betty S. Kjos / BS Kj Date: 11-28-01
Print name Signature

and,

I performed this survey: _____ / _____ Date: _____
Print name Signature

Corrections and reason (required):

Comment Resolution:

ırvey Reviewed
ıd Approved by: PAUL JONES / Signature Date: 11/29/01
Print name Signature

Survey Date: 11/16/01 Report Date: 11/28/01 Station: 2
File: 227 Page: 1

Comments

| Survey Code | L1 | L2 | L3 | L4 | L5 | L6 | Setup Number 2 |
|---|---|---|---|---|---|---|---|
| | B0900 | 01F01 | TAT01 | 03100 | FLDCT | B0002 | Det Cal Due: 2/18/02 |

| L7 Code Grid ID | L8 Code Location Number | Sample Number | Count Time (sec) | Gross Counts | Gross Micro R/hr | Hi |
|---|---|---|---|---|---|---|
| ZZZZZ | 00032 | 106 | 10 | 887 | 18.8 | * |

Group Average: 5322 cpm Average uR/hr: 18.8
Number of measurements: 1

| Survey Code | L1 | L2 | L3 | L4 | L5 | L6 | Setup Number 2 |
|---|---|---|---|---|---|---|---|
| | ZZZZZ | 19453 | TAT01 | 03100 | PRG00 | ZZZZZ | Det Cal Due: 2/18/02 |

| L7 Code Grid ID | L8 Code Location Number | Sample Number | Count Time (sec) | Gross Counts | Gross Micro R/hr | Hi |
|---|---|---|---|---|---|---|
| ZZZZZ | 00000 | 83 | 60 | 603703 | 2131.5 | * |
| ZZZZZ | 00000 | 84 | 60 | 15327 | 54.1 | * |
| ZZZZZ | 00000 | 85 | 60 | 5575 | 19.7 | * |

Group Average: 208202 cpm Average uR/hr: 735.1
Number of measurements: 3

| Survey Code | L1 | L2 | L3 | L4 | L5 | L6 | Setup Number 2 |
|---|---|---|---|---|---|---|---|
| | ZZZZZ | 19453 | TAT01 | 03100 | PTGBK | ZZZZZ | Det Cal Due: 2/18/02 |

| Grid ID | L8 Code Location Number | Sample Number | Count Time (sec) | Gross Counts | Gross Micro R/hr | Hi |
|---|---|---|---|---|---|---|
| ZZZZZ | 00000 | 124 | 300 | 21597 | 15.3 | * |

Group Average: 4319 cpm Average uR/hr: 15.3
Number of measurements: 1

| Survey Code | L1 | L2 | L3 | L4 | L5 | L6 | Setup Number 2 |
|---|---|---|---|---|---|---|---|
| | ZZZZZ | 19453 | TAT01 | 03100 | PTGOO | ZZZZZ | Det Cal Due: 2/18/02 |

| L7 Code Grid ID | L8 Code Location Number | Sample Number | Count Time (sec) | Gross Counts | Gross Micro R/hr | Hi |
|---|---|---|---|---|---|---|
| ZZZZZ | 00000 | 126 | 60 | 15590 | 55.0 | * |
| ZZZZZ | 00000 | 127 | 60 | 6013 | 21.2 | * |
| ZZZZZ | 00000 | 128 | 60 | 5692 | 20.1 | * |

Group Average: 9098 cpm Average uR/hr: 32.1
Number of measurements: 3

| Survey Code | L1 | L2 | L3 | L4 | L5 | L6 | Setup Number 2 |
|---|---|---|---|---|---|---|---|
| | ZZZZZ | ZZZZZ | TAT01 | 03100 | PRGBK | ZZZZZ | Det Cal Due: 2/18/02 |

| L7 Code Grid ID | L8 Code Location Number | Sample Number | Count Time (sec) | Gross Counts | Gross Micro R/hr | Hi |
|---|---|---|---|---|---|---|
| ZZ | 00000 | 82 | 300 | 20969 | 14.8 | |

* Hi flag set at 15.0 micro-R/hr.

Survey Date: 11/16/01 Report Date: 11/28/01 Station: 2
File: 227 Page: 2

| Survey Code | L1 | L2 | L3 | L4 | L5 | L6 |
|---|---|---|---|---|---|---|
| | ZZZZZ | ZZZZZ | TAT01 | 03100 | PRGBK | ZZZZZ |

Setup Number 2
Det Cal Due: 2/18/02

Comments

| L7 Code Grid ID | L8 Code Location Number | Sample Number | Count Time (sec) | Gross Counts | Gross Micro R/hr | Hi |
|---|---|---|---|---|---|---|

Group Average: 4194 cpm Average uR/hr: 14.8
Number of measurements: 1

Total Number of Measurements on this Report: 9

NOTE: This report is grouped by:
Package (L1) (Package number)
Setup number (Detector parameters)
Det Type (L4) (GM pancake-flat surface, Beta 3.5-12" pipe, gamma at 1 m, etc.)
Reason (L3-345) (Char survey, source check, final survey, etc.)
Surface Cat (L2) (Wall, floor, drain, penetration, etc.)
Count Type (L5) (Field count, bkg, pre-, post-, etc.)
Bkgd Sub (L6) (Material code, i.e., wood, iron, concr, etc.)



* Hi flag set at 15.0 micro-R/hr.

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11/28/01 Comments Report for File 227 Station: 2

| Comment Number | Comment |
|---|---|
| 1 | Deleted sample numbers from 0-81, 86-105, 107-123, 129-140. These samples can be found on downloads 223-226 and 228,229. |
| 2 | Changed L6(Bkgd Sub) from B0003 to B0002 for Samples from 106 to 106. Because data entered incorrectly. |
| 3 | Changed L5(Count Type) from PRG00 to PTGOO for Samples from 125 to 128. Because data entered incorrectly. |
| 4 | Deleted sample numbers from 125 to 125. Because reading taken in error. |

GTS:0143 :C:\PDOX35\M2350\COMMENTS:R1

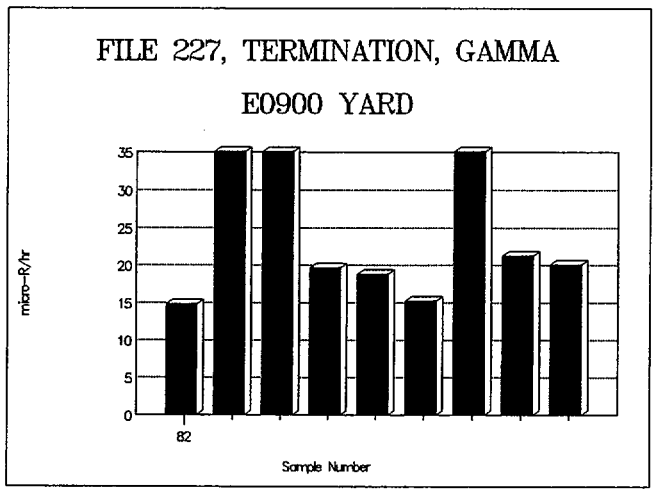
GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

11/28/2001 Graph of File 227 Station: 2

Survey Date: 11/16/2001 Survey Start Time: 13:25:12

Description: E0900 YARD




Flag set for 15 micro-R/hr. Review values greater than this value.

Review this graph for visual outliers.

Mark outliers, source checks and backgrounds on the graph on this page.

## ATTACHMENT 6.14
## SURVEY DOWNLOAD DATA SHEET

Download Technician: Print Name: D. Schumacker Signature: [signature] Station: 2 File: 207

Serial No. Verification: Model 2350: ☐ Detector: ☐ Problems: ☐ (See Comments)

Survey Technician(s):
Print Name: D. Schumacker User ID: DS 4133 Signature: [signature] Date: 7/24/01

Print Name: _____ User ID _____ Signature: _____ Date: _____

Survey Unit Description: E0900: Rx YARD GAMMA
*(Example: Survey Package + description i.e. D16, Building 43, Area 09, Room 100, Floor - Grid Locations A1 through A7)*

Instrument Model and Serial No.: Model 2350 ☐ Model 2350-1 ☒: 126182

Instrument and Detector Calibration Due Dates: Survey Meter: 12-13-01 Detector: 12-6-01

Type Of Survey: ☒ Term Survey ☐ Characterization ☐ Information Only
☐ Other (explain):

| Type of Measurement | Detector Serial Number | Detector Model Number | Detector Efficiency | Source Mean BKG Value | Pre & Post Use Info | |
|---|---|---|---|---|---|---|
| | | | | | Pre File No. | Post File No. |
| ☐ Beta β | | 43-106B | | | | |
| ☐ Beta β | | 43-68B | | | | |
| ☐ Alpha α | | 43-68A | | | | |
| ☒ Gamma γ | 091034 | 44-2 | N/A | | 206 | 207 |
| | | | | | | |

Local Area Background Measurements — MEAN Value in cpm

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| β Beta | 1 | 2 | 3 | 4 | 5 | 6 | |
| α Alpha | 1 | 2 | 3 | 4 | 5 | 6 | |

COMMENTS: _____

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

Gamma Radiation Survey Report, Micro-R/hour - Integrated Measurement

| | | | |
|---|---|---|---|
| File Number: 207 | Survey Description: E0900: RX YARD | | |
| Survey Reason: TERMINATION | User ID: DPS4133 | Technician name: Don Schumaker | |
| Instrument Model: M2350-1 | S/N: 126182 | Calibration Due: 12/13/01 | Group: 2 |
| Detector Model: 44-2 | Detector S/N: 091034 | Type: High Energy Gamma Scintillator, 1x1 NaI | |
| Background: uR/hr | Gamma Calibration Constant: 1.70095 E10 c/R | PIC ratio: 1.000 (PIC/NaI) | Survey Date: 7/24/01 |

Pre and Post source checks are included on this download: Yes ___ No ✓
If No is answered, then list the Download Files which include the Pre and Post source checks.
Pre File #: 206 Post File #: 207

Technician Review:

I have reveiwed this cover sheet and 2 pages of the report, 1 pages of comments, and 1 graph.

I performed this survey: Don Schumaker / [signature] Date: 7/24/01
Print name Signature

and,

I performed this survey: _____ / _____ Date: _____
Print name Signature

Corrections and reason (required):

Comment Resolution:

Survey Reviewed and Approved by: PAUL JONES / [signature] Date: 7/31/01
Print name Signature

Survey Date: 7/24/01 Report Date: 7/24/01 Station: 2
File: 207 Page: 1

| Survey Code | L1 | L2 | L3 | L4 | L5 | L6 | Setup Number 2 |
|---|---|---|---|---|---|---|---|
| | E0900 | 01FE1 | TAT01 | 03100 | FLDCT | B0002 | Det Cal Due: 12/06/01 |

| L7 Code Grid ID | L8 Code Location Number | Sample Number | Count Time (sec) | Gross Counts | Gross Micro R/hr | Hi |
|---|---|---|---|---|---|---|
| ZZZZZ | 00025 | 23 | 10 | 618 | 13.1 | |
| ZZZZZ | 00028 | 24 | 10 | 645 | 13.7 | |
| ZZZZZ | 00029 | 25 | 10 | 562 | 11.9 | |
| ZZZZZ | 00030 | 26 | 10 | 501 | 10.6 | |
| ZZZZZ | 00031 | 27 | 10 | 698 | 14.8 | |
| ZZZZZ | 00019 | 28 | 10 | 678 | 14.3 | |
| ZZZZZ | 00020 | 29 | 10 | 512 | 10.8 | |
| ZZZZZ | 00021 | 30 | 10 | 505 | 10.7 | |
| ZZZZZ | 00032 | 31 | 10 | 767 | 16.2 | * |
| ZZZZZ | 00033 | 32 | 10 | 552 | 11.7 | |
| ZZZZZ | 00034 | 33 | 10 | 686 | 14.5 | |

Group Average: 3668 cpm Average uR/hr: 12.9
Number of measurements: 11

| Survey Code | L1 | L2 | L3 | L4 | L5 | L6 | Setup Number 2 |
|---|---|---|---|---|---|---|---|
| | E0900 | 01FE1 | TAT01 | 03100 | FLDCT | B0005 | Det Cal Due: 12/06/01 |

| L7 Code Grid ID | L8 Code Location Number | Sample Number | Count Time (sec) | Gross Counts | Gross Micro R/hr | Hi |
|---|---|---|---|---|---|---|
| ZZZZZ | 00001 | 0 | 10 | 613 | 13.0 | |
| ZZZZZ | 00002 | 1 | 10 | 565 | 12.0 | |
| ZZZZZ | 00003 | 2 | 10 | 497 | 10.5 | |
| ZZZZZ | 00004 | 3 | 10 | 515 | 10.9 | |
| ZZZZZ | 00005 | 4 | 10 | 541 | 11.5 | |
| ZZZZZ | 00006 | 5 | 10 | 519 | 11.0 | |
| ZZZZZ | 00007 | 6 | 10 | 492 | 10.4 | |
| ZZZZZ | 00008 | 7 | 10 | 544 | 11.5 | |
| ZZZZZ | 00009 | 8 | 10 | 519 | 11.0 | |
| ZZZZZ | 00010 | 9 | 10 | 571 | 12.1 | |
| ZZZZZ | 00011 | 10 | 10 | 526 | 11.1 | |
| ZZZZZ | 00012 | 11 | 10 | 548 | 11.6 | |
| ZZZZZ | 00013 | 12 | 10 | 517 | 10.9 | |
| ZZZZZ | 00014 | 13 | 10 | 572 | 12.1 | |
| ZZZZZ | 00015 | 14 | 10 | 533 | 11.3 | |
| ZZZZZ | 00016 | 15 | 10 | 541 | 11.5 | |
| ZZZZZ | 00017 | 16 | 10 | 596 | 12.6 | |
| ZZZZZ | 00018 | 17 | 10 | 545 | 11.5 | |
| ZZZZZ | 00022 | 18 | 10 | 566 | 12.0 | |
| ZZZZZ | 00023 | 19 | 10 | 516 | 10.9 | |
| ZZZZZ | 00024 | 20 | 10 | 610 | 12.9 | |
| ZZZZZ | 00026 | 21 | 10 | 567 | 12.0 | |
| ZZZZZ | 00027 | 22 | 10 | 485 | 10.3 | |

Group Average: 3260 cpm Average uR/hr: 11.5
Number of measurements: 23

| Survey Code | L1 | L2 | L3 | L4 | L5 | L6 | Setup Number 2 |
|---|---|---|---|---|---|---|---|
| | ZZZZZ | 19453 | TAT01 | 03100 | PTB00 | ZZZZZ | Det Cal Due: 12/06/01 |

| L7 Code Grid ID | L8 Code Location Number | Sample Number | Count Time (sec) | Gross Counts | Gross Micro R/hr | Hi |
|---|---|---|---|---|---|---|
| ZZZZZ | 00000 | 36 | 60 | 550401 | 1941.5 | * |
| ZZZZZ | 00000 | 37 | 60 | 13795 | 48.7 | * |
| ZZZZZ | 00000 | 38 | 60 | 5206 | 18.4 | * |

* Hi flag set at 15.0 micro-R/hr.

Comments

Survey Date: 7/24/01 Report Date: 7/24/01 Station: 2
File: 207 Page: 2

| Survey Code | L1 | L2 | L3 | L4 | L5 | L6 | Setup Number 2 |
|---|---|---|---|---|---|---|---|
| | ZZZZZ | 19453 | TAT01 | 03100 | PTB00 | ZZZZZ | Det Cal Due: 12/06/01 |

| L7 Code Grid ID | L8 Code Location Number | Sample Number | Count Time (sec) | Gross Counts | Gross Micro R/hr | H i |
|---|---|---|---|---|---|---|

Group Average: 189801 cpm Average uR/hr: 669.5
Number of measurements: 3

| Survey Code | L1 | L2 | L3 | L4 | L5 | L6 | Setup Number 2 |
|---|---|---|---|---|---|---|---|
| | ZZZZZ | ZZZZZ | TAT01 | 03100 | PTBBK | ZZZZZ | Det Cal Due: 12/06/01 |

| L7 Code Grid ID | L8 Code Location Number | Sample Number | Count Time (sec) | Gross Counts | Gross Micro R/hr | H i |
|---|---|---|---|---|---|---|
| ZZZZZ | 00000 | 35 | 300 | 19119 | 13.5 | |

Group Average: 3824 cpm Average uR/hr: 13.5
Number of measurements: 1

Total Number of Measurements on this Report: 38

Comments

NOTE: This report is grouped by:
Package (L1) (Package number)
Setup number (Detector parameters)
Det Type (L4) (GM pancake-flat surface, Beta 3.5-12" pipe, gamma at 1 m, etc.)
Reason (L3-345) (Char survey, source check, final survey, etc.)
Surface Cat (L2) (Wall, floor, drain, penetration, etc.)
Count Type (L5) (Field count, bkg, pre-, post-, etc.)
Bkgd Sub (L6) (Material code, i.e., wood, iron, concr, etc.)



* Hi flag set at 15.0 micro-R/hr.

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

7/24/01 Comments Report for File 207 Station: 2

| Comment Number | Comment |
|---|---|
| 1 | Deleted sample numbers from 34 to 34. Because A 600 SECOND BACKGROUND WAS TAKEN INSTEAD OF A 300 SECOND. |

GTS:0143 :C:\PDOX35\M2350\COMMENTS:R1

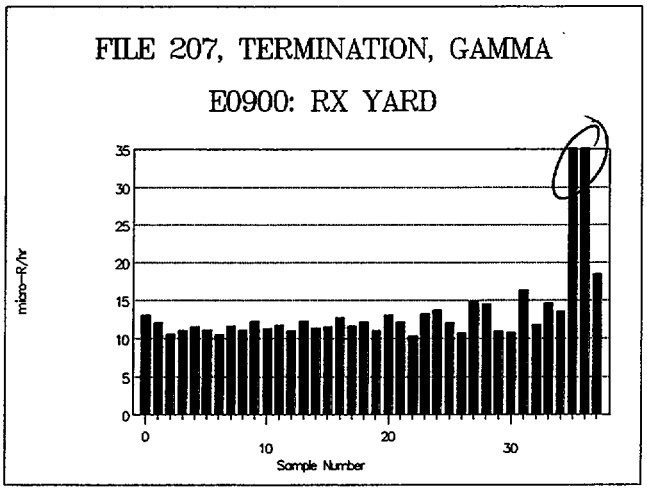
GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

7/24/2001 Graph of File 207 Station: 2

Survey Date: 7/24/2001 Survey Start Time: 13:11:20

Description: E0900: RX YARD




Post s/c

Flag set for 15 micro-R/hr. Review values greater than this value.

Review this graph for visual outliers.

Mark outliers, source checks and backgrounds on the graph on this page.

# Section 5

## Package 9
## Removable Beta Contamination for the Unaffected Yard Areas (including lab reports)

Removable Beta Contamination Package E0900 (~~Non-Suspect Affected~~ Unaffected Yard Areas)

P. Jones 3/13/02

| Desc. | Gross Counts | Count Time (sec) | Sample Area ($cm^2$) | Surface | Count Type | Row | Location | Efficiency (dpm/cpm) | Background (cpm) | Net Activity ($dpm/100cm^2$) | MDA ($dpm/100cm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00001 | 0.3425 | 1 | 4 | 14 |
| | 4 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00002 | 0.3425 | 1 | 4 | 14 |
| | 4 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00003 | 0.3425 | 1 | 4 | 14 |
| | 1 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00004 | 0.3425 | 1 | -2 | 14 |
| | 7 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00005 | 0.3425 | 1 | 10 | 14 |
| | 3 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00006 | 0.3425 | 1 | 2 | 14 |
| | 0 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00007 | 0.3425 | 1 | -4 | 14 |
| | 1 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00008 | 0.3425 | 1 | -2 | 14 |
| | 0 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00009 | 0.3425 | 1 | -4 | 14 |
| | 1 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00010 | 0.3425 | 1 | -2 | 14 |
| | 1 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00011 | 0.3425 | 1 | -2 | 14 |
| | 1 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00012 | 0.3425 | 1 | -2 | 14 |
| | 2 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00013 | 0.3425 | 1 | 0 | 14 |
| | 2 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00014 | 0.3425 | 1 | 0 | 14 |
| | 5 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00015 | 0.3425 | 1 | 6 | 14 |
| | 2 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00016 | 0.3425 | 1 | 0 | 14 |
| | 3 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00017 | 0.3425 | 1 | 2 | 14 |
| | 2 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00018 | 0.3425 | 1 | 0 | 14 |
| | 0 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00019 | 0.3425 | 1 | -4 | 14 |
| | 4 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00020 | 0.3425 | 1 | 4 | 14 |
| | 1 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00021 | 0.3425 | 1 | -2 | 14 |
| | 2 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00022 | 0.3425 | 1 | 0 | 14 |
| | 1 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00023 | 0.3425 | 1 | -2 | 14 |
| | 0 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00024 | 0.3425 | 1 | -4 | 14 |
| | 4 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00025 | 0.3425 | 1 | 4 | 14 |
| | 2 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00026 | 0.3425 | 1 | 0 | 14 |
| | 0 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00027 | 0.3425 | 1 | -4 | 14 |
| | 2 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00028 | 0.3425 | 1 | 0 | 14 |
| | 5 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00029 | 0.3425 | 1 | 6 | 14 |
| | 0 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00030 | 0.3425 | 1 | -4 | 14 |
| | 1 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00031 | 0.3425 | 1 | -2 | 14 |
| | 2 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00032 | 0.3425 | 1 | 0 | 14 |
| | 0 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00033 | 0.3425 | 1 | -4 | 14 |
| | 0 | 90 | 100 | 01FE1 | FLDCT | ZZZZZ | 00034 | 0.3425 | 1 | -4 | 14 |
| | | | | | | | | | # Measurements | 34 | |
| | | | | | | | | | Average | 0 | $dpm/100cm^2$ |
| | | | | | | | | | Maximum | 10 | $dpm/100cm^2$ |
| | | | | | | | | | STD DEV | 3 | $dpm/100cm^2$ |
| | | | | | | | | | 95% CL on Mean | 1 | $dpm/100cm^2$ |



040

FINAL SURVEY 01FE1 NA PIN 09
PIC IPC9025 216712

| | | | ALPHA | | | | BETA | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Eff: 34.97% Bkg: 0.00 cpm MDA: 5.17 dpm | | | | Eff: 34.25% Bkg: 1.20 cpm MDA: 17.42 dpm | | | |
| SN | RPT | ID | COUNTS | NET CPM | DPM | LIMITS | COUNTS | NET CPM | DPM | LIMITS | DATE | TIME |
| 001 | 00 | 1 | 0 | 0.00 | 0.00 | | 4 | 1.47 | 4.28 | | 07-27-2001 | 10:37:38 |
| 002 | 00 | 2 | 0 | 0.00 | 0.00 | | 4 | 1.47 | 4.28 | | 07-27-2001 | 10:39:37 |
| 003 | 00 | 3 | 0 | 0.00 | 0.00 | | 4 | 1.47 | 4.28 | | 07-27-2001 | 10:41:36 |
| 004 | 00 | 4 | 0 | 0.00 | 0.00 | | 1 | -0.53 | -1.56 | | 07-27-2001 | 10:43:35 |
| 005 | 00 | 5 | 0 | 0.00 | 0.00 | | 7 | 3.47 | 10.12 | | 07-27-2001 | 10:45:34 |
| 006 | 00 | 6 | 0 | 0.00 | 0.00 | | 3 | 0.80 | 2.34 | | 07-27-2001 | 10:47:33 |
| 007 | 00 | 7 | 0 | 0.00 | 0.00 | | 0 | -1.20 | -3.50 | | 07-27-2001 | 10:49:32 |
| 008 | 00 | 8 | 1 | 0.67 | 1.91 | | 1 | -0.73 | -2.14 | | 07-27-2001 | 10:51:31 |
| 009 | 00 | 9 | 0 | 0.00 | 0.00 | | 0 | -1.20 | -3.50 | | 07-27-2001 | 10:53:30 |
| 010 | 00 | 10 | 0 | 0.00 | 0.00 | | 1 | -0.53 | -1.56 | | 07-27-2001 | 10:55:29 |
| 011 | 00 | 11 | 1 | 0.67 | 1.91 | | 1 | -0.73 | -2.14 | | 07-27-2001 | 10:57:28 |
| 012 | 00 | 12 | 0 | 0.00 | 0.00 | | 1 | -0.53 | -1.56 | | 07-27-2001 | 10:59:27 |
| 013 | 00 | 13 | 0 | 0.00 | 0.00 | | 2 | 0.13 | 0.39 | | 07-27-2001 | 11:01:26 |
| 014 | 00 | 14 | 0 | 0.00 | 0.00 | | 2 | 0.13 | 0.39 | | 07-27-2001 | 11:03:25 |
| 015 | 00 | 15 | 0 | 0.00 | 0.00 | | 5 | 2.13 | 6.23 | | 07-27-2001 | 11:05:24 |
| 016 | 00 | 16 | 0 | 0.00 | 0.00 | | 2 | 0.13 | 0.39 | | 07-27-2001 | 11:07:23 |
| 017 | 00 | 17 | 0 | 0.00 | 0.00 | | 3 | 0.80 | 2.34 | | 07-27-2001 | 11:09:22 |
| 018 | 00 | 18 | 0 | 0.00 | 0.00 | | 2 | 0.13 | 0.39 | | 07-27-2001 | 11:11:21 |
| 019 | 00 | 19 | 0 | 0.00 | 0.00 | | 0 | -1.20 | -3.50 | | 07-27-2001 | 11:13:20 |
| 020 | 00 | 20 | 0 | 0.00 | 0.00 | | 4 | 1.47 | 4.28 | | 07-27-2001 | 11:15:19 |
| 021 | 00 | 21 | 0 | 0.00 | 0.00 | | 1 | -0.53 | -1.56 | | 07-27-2001 | 11:17:18 |
| 022 | 00 | 22 | 0 | 0.00 | 0.00 | | 2 | 0.13 | 0.39 | | 07-27-2001 | 11:19:17 |
| 023 | 00 | 23 | 0 | 0.00 | 0.00 | | 1 | -0.53 | -1.56 | | 07-27-2001 | 11:21:16 |
| 024 | 00 | 24 | 1 | 0.67 | 1.91 | | 0 | -1.40 | -4.08 | | 07-27-2001 | 11:23:15 |
| 025 | 00 | 25 | 0 | 0.00 | 0.00 | | 4 | 1.47 | 4.28 | | 07-27-2001 | 11:25:14 |
| 026 | 00 | 26 | 0 | 0.00 | 0.00 | | 2 | 0.13 | 0.39 | | 07-27-2001 | 11:27:13 |
| 027 | 00 | 27 | 0 | 0.00 | 0.00 | | 0 | -1.20 | -3.50 | | 07-27-2001 | 11:29:12 |
| 028 | 00 | 28 | 0 | 0.00 | 0.00 | | 2 | 0.13 | 0.39 | | 07-27-2001 | 11:31:11 |
| 029 | 00 | 29 | 0 | 0.00 | 0.00 | | 5 | 2.13 | 6.23 | | 07-27-2001 | 11:33:10 |
| 030 | 00 | 30 | 0 | 0.00 | 0.00 | | 0 | -1.20 | -3.50 | | 07-27-2001 | 11:35:09 |
| 031 | 00 | 31 | 0 | 0.00 | 0.00 | | 1 | -0.53 | -1.56 | | 07-27-2001 | 11:37:08 |
| 032 | 00 | 32 | 0 | 0.00 | 0.00 | | 2 | 0.13 | 0.39 | | 07-27-2001 | 11:39:07 |
| 033 | 00 | 33 | 0 | 0.00 | 0.00 | | 0 | -1.20 | -3.50 | | 07-27-2001 | 11:41:06 |
| 034 | 00 | 34 | 0 | 0.00 | 0.00 | | 0 | -1.20 | -3.50 | | 07-27-2001 | 11:43:05 |

Performed By: [signature] Date: 7/27/01

Reviewed By: [signature] Date: 8/6/01

# Section 6

# Package 9
# H-3 Removable Beta Contamination
# Summary Data Table (including lab reports)

| Carrier No. | CPM | Count Time (sec) | Sample Area ($cm^2$) | Surface | Row | Location | Beta Efficiency | Beta Background (cpm) | Activity ($dpm/100cm^2$) | Net Activity ($dpm/100cm^2$) | MDA ($dpm/100cm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 26 | 60 | 100 | 01FE1 | NA | 00001 | 0.264 | 0.00 | 98 | 98 | 10 |
| 2 | 30 | 60 | 100 | 01FE1 | NA | 00002 | 0.112 | 0.00 | 269 | 269 | 24 |
| 3 | 30 | 60 | 100 | 01FE1 | NA | 00003 | 0.246 | 0.00 | 122 | 122 | 11 |
| 4 | 33 | 60 | 100 | 01FE1 | NA | 00004 | 0.096 | 0.00 | 344 | 344 | 28 |
| 5 | 27 | 60 | 100 | 01FE1 | NA | 00005 | 0.291 | 0.00 | 93 | 93 | 9 |
| 6 | 29 | 60 | 100 | 01FE1 | NA | 00006 | 0.338 | 0.00 | 86 | 86 | 8 |
| 7 | 37 | 60 | 100 | 01FE1 | NA | 00007 | 0.314 | 0.00 | 118 | 118 | 9 |
| 8 | 41 | 60 | 100 | 01FE1 | NA | 00008 | 0.326 | 0.00 | 126 | 126 | 8 |
| 9 | 41 | 60 | 100 | 01FE1 | NA | 00009 | 0.335 | 0.00 | 123 | 123 | 8 |
| 10 | 32 | 60 | 100 | 01FE1 | NA | 00010 | 0.338 | 0.00 | 95 | 95 | 8 |
| 11 | 28 | 60 | 100 | 01FE1 | NA | 00011 | 0.347 | 0.00 | 81 | 81 | 8 |
| 12 | 27 | 60 | 100 | 01FE1 | NA | 00012 | 0.288 | 0.00 | 94 | 94 | 9 |
| 13 | 36 | 60 | 100 | 01FE1 | NA | 00013 | 0.323 | 0.00 | 112 | 112 | 8 |
| 14 | 40 | 60 | 100 | 01FE1 | NA | 00014 | 0.278 | 0.00 | 144 | 144 | 10 |
| 15 | 38 | 60 | 100 | 01FE1 | NA | 00015 | 0.103 | 0.00 | 370 | 370 | 26 |
| 16 | 42 | 60 | 100 | 01FE1 | NA | 00016 | 0.212 | 0.00 | 198 | 198 | 13 |
| 17 | 38 | 60 | 100 | 01FE1 | NA | 00017 | 0.300 | 0.00 | 127 | 127 | 9 |
| 18 | 36 | 60 | 100 | 01FE1 | NA | 00018 | 0.347 | 0.00 | 104 | 104 | 8 |
| 19 | 39 | 60 | 100 | 01FE1 | NA | 00019 | 0.329 | 0.00 | 119 | 119 | 8 |
| 20 | 29 | 60 | 100 | 01FE1 | NA | 00020 | 0.280 | 0.00 | 103 | 103 | 10 |
| 21 | 46 | 60 | 100 | 01FE1 | NA | 00021 | 0.323 | 0.00 | 143 | 143 | 8 |
| 22 | 37 | 60 | 100 | 01FE1 | NA | 00022 | 0.338 | 0.00 | 110 | 110 | 8 |
| 23 | 48 | 60 | 100 | 01FE1 | NA | 00023 | 0.374 | 0.00 | 128 | 128 | 7 |
| 24 | 35 | 60 | 100 | 01FE1 | NA | 00024 | 0.368 | 0.00 | 95 | 95 | 7 |
| 25 | 38 | 60 | 100 | 01FE1 | NA | 00025 | 0.416 | 0.00 | 91 | 91 | 7 |
| 26 | 34 | 60 | 100 | 01FE1 | NA | 00026 | 0.397 | 0.00 | 86 | 86 | 7 |
| 27 | 49 | 60 | 100 | 01FE1 | NA | 00027 | 0.362 | 0.00 | 135 | 135 | 7 |
| 28 | 31 | 60 | 100 | 01FE1 | NA | 00028 | 0.222 | 0.00 | 140 | 140 | 12 |
| 1 | 44 | 60 | 100 | 01FE1 | NA | 00029 | 0.264 | 0.00 | 167 | 167 | 10 |
| 2 | 29 | 60 | 100 | 01FE1 | NA | 00030 | 0.378 | 0.00 | 77 | 77 | 7 |
| 3 | 46 | 60 | 100 | 01FE1 | NA | 00031 | 0.104 | 0.00 | 441 | 441 | 26 |
| 4 | 32 | 60 | 100 | 01FE1 | NA | 00032 | 0.194 | 0.00 | 165 | 165 | 14 |
| 5 | 31 | 60 | 100 | 01FE1 | NA | 00033 | 0.286 | 0.00 | 109 | 109 | 9 |
| 6 | 42 | 60 | 100 | 01FE1 | NA | 00034 | 0.341 | 0.00 | 123 | 123 | 8 |
| | | | | | | | | | # Measurements | 34 | |
| | | | | | | | | | Average | 145 | |
| | | | | | | | | | Maximum | 441 | |
| | | | | | | | | | STD DEV | 84 | |
| | | | | | | | | | 95% CL on Mean | 178 | |



043

USER: 1 ID:SMEARS PRESET TIME: 1.00 WED 01 AUG 2001 09:49
SAMPLE REPEAT: 1 CYCLE REPEAT: 1 SCR:N RS232:N
H#: 1 AQC:N QCF:N RCM:N 2 PHASE MONITOR:N
CHANNEL 1-LL: 0 UL: 400 2SIGMA: 2.00 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0
CHANNEL 2-LL: 0 UL: 670 2SIGMA: 2.00 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0
CHANNEL 3-LL: 0 UL:1000 2SIGMA: 2.00 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0

SINGLE LABEL DPM, SET UP ON SUN 24 JUN 2001 16:19
UNKNOWN ID:SMEARS UNKNOWN REPLICATES: 1
UNKNOWN NORM FACTOR:Q 1.00000 UNKNOWN UNITS:DPM
QUENCH MODE:H CALCULATE COEFF:N HALF LIFE(DAYS):N
QUENCH COEFF A: 4.328559 B:-0.0051270 C:-0.0000122 D:-0.0000000212
STANDARD ID:
QUENCH LIMITS LOW:90.00 HIGH:390.0

| SAM | POS | CH | CPM | 2SIG% | TIME | EL TIME | AVG H# | | ERR |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 8- 1 | 1 | 26.00 | 39.22 | 1.00 | 1.30 | 144.0 | | |
| | | 2 | 63.00 | 25.20 | | | | | |
| | | 3 | 91.00 | 20.97 | | | | | |
| | | | | | %EFF:26.42 | ISO1 DPM | | :98.42297 | |
| 2 | 8- 2 | 1 | 30.00 | 36.51 | 1.00 | 2.78 | 218.0 | | |
| | | 2 | 59.00 | 26.04 | | | | | |
| | | 3 | 74.00 | 23.25 | | | | | |
| | | | | | %EFF:11.15 | ISO1 DPM | | :269.0582 | |
| 3 | 8- 3 | 1 | 30.00 | 36.51 | 1.00 | 4.26 | 151.0 | | |
| | | 2 | 54.00 | 27.22 | | | | | |
| | | 3 | 79.00 | 22.50 | | | | | |
| | | | | | %EFF:24.61 | ISO1 DPM | | :121.8942 | |
| 4 | 8- 4 | 1 | 33.00 | 34.82 | 1.00 | 5.75 | 229.0 | | |
| | | 2 | 65.00 | 24.81 | | | | | |
| | | 3 | 77.00 | 22.79 | | | | | |
| | | | | | %EFF:9.584 | ISO1 DPM | | :344.3224 | |
| 5 | 8- 5 | 1 | 27.00 | 38.49 | 1.00 | 7.23 | 134.0 | | |
| | | 2 | 54.00 | 27.22 | | | | | |
| | | 3 | 75.00 | 23.09 | | | | | |
| | | | | | %EFF:29.12 | ISO1 DPM | | :92.71597 | |
| 6 | 8- 6 | 1 | 29.00 | 37.14 | 1.00 | 8.70 | 118.0 | | |
| | | 2 | 61.00 | 25.61 | | | | | |
| | | 3 | 91.00 | 20.97 | | | | | |
| | | | | | %EFF:33.75 | ISO1 DPM | | :85.93522 | |
| 7 | 8- 7 | 1 | 37.00 | 32.88 | 1.00 | 10.18 | 126.0 | | |
| | | 2 | 62.00 | 25.40 | | | | | |
| | | 3 | 88.00 | 21.32 | | | | | |
| | | | | | %EFF:31.39 | ISO1 DPM | | :117.8748 | |
| 8 | 8- 8 | 1 | 41.00 | 31.23 | 1.00 | 11.66 | 122.0 | | |
| | | 2 | 71.00 | 23.74 | | | | | |
| | | 3 | 98.00 | 20.20 | | | | | |
| | | | | | %EFF:32.56 | ISO1 DPM | | :125.9338 | |
| 9 | 8- 9 | 1 | 41.00 | 31.23 | 1.00 | 13.14 | 119.0 | | |
| | | 2 | 68.00 | 24.25 | | | | | |
| | | 3 | 94.00 | 20.63 | | | | | |
| | | | | | %EFF:33.45 | ISO1 DPM | | :122.5827 | |

Performed By: [signature] Date: 8/1/01

Reviewed By: [signature] Date: 8/8/01

| SMP | POS | CH | CPM | 2SIG% | TIME | EL TIME | AVG H# | ERR |
|---|---|---|---|---|---|---|---|---|
| 10 | 8-10 | 1 | 32.00 | 35.36 | 1.00 | 14.63 | 118.0 | |
| | | 2 | 55.00 | 26.97 | | | | |
| | | 3 | 77.00 | 22.79 | | | | |
| | | | | | %EFF: | 33.75 | ISO1 DPM | :94.82507 |
| 11 | 8-11 | 1 | 28.00 | 37.80 | 1.00 | 16.10 | 115.0 | |
| | | 2 | 55.00 | 26.97 | | | | |
| | | 3 | 76.00 | 22.94 | | | | |
| | | | | | %EFF: | 34.65 | ISO1 DPM | :80.80251 |
| 12 | 8-12 | 1 | 27.00 | 38.49 | 1.00 | 17.59 | 135.0 | |
| | | 2 | 58.00 | 26.26 | | | | |
| | | 3 | 86.00 | 21.57 | | | | |
| | | | | | %EFF: | 28.84 | ISO1 DPM | :93.60668 |
| 13 | 6- 1 | 1 | 36.00 | 33.33 | 1.00 | 19.13 | 123.0 | |
| | | 2 | 61.00 | 25.61 | | | | |
| | | 3 | 94.00 | 20.63 | | | | |
| | | | | | %EFF: | 32.26 | ISO1 DPM | :111.5840 |
| 14 | 6- 2 | 1 | 40.00 | 31.62 | 1.00 | 20.62 | 139.0 | |
| | | 2 | 59.00 | 26.04 | | | | |
| | | 3 | 80.00 | 22.36 | | | | |
| | | | | | %EFF: | 27.75 | ISO1 DPM | :144.1409 |
| 15 | 6- 3 | 1 | 38.00 | 32.44 | 1.00 | 22.11 | 224.0 | |
| | | 2 | 65.00 | 24.81 | | | | |
| | | 3 | 84.00 | 21.82 | | | | |
| | | | | | %EFF: | 10.27 | ISO1 DPM | :369.8412 |
| | 6- 4 | 1 | 42.00 | 30.86 | 1.00 | 23.59 | 165.0 | |
| | | 2 | 69.00 | 24.08 | | | | |
| | | 3 | 92.00 | 20.85 | | | | |
| | | | | | %EFF: | 21.23 | ISO1 DPM | :197.8706 |
| 17 | 6- 5 | 1 | 38.00 | 32.44 | 1.00 | 25.08 | 131.0 | |
| | | 2 | 74.00 | 23.25 | | | | |
| | | 3 | 103.00 | 19.71 | | | | |
| | | | | | %EFF: | 29.96 | ISO1 DPM | :126.8316 |
| 18 | 6- 6 | 1 | 36.00 | 33.33 | 1.00 | 26.57 | 115.0 | |
| | | 2 | 62.00 | 25.40 | | | | |
| | | 3 | 90.00 | 21.08 | | | | |
| | | | | | %EFF: | 34.65 | ISO1 DPM | :103.8889 |
| 19 | 6- 7 | 1 | 39.00 | 32.03 | 1.00 | 28.04 | 121.0 | |
| | | 2 | 67.00 | 24.43 | | | | |
| | | 3 | 97.00 | 20.31 | | | | |
| | | | | | %EFF: | 32.85 | ISO1 DPM | :118.7136 |
| 20 | 6- 8 | 1 | 29.00 | 37.14 | 1.00 | 29.51 | 138.0 | |
| | | 2 | 65.00 | 24.81 | | | | |
| | | 3 | 97.00 | 20.31 | | | | |
| | | | | | %EFF: | 28.02 | ISO1 DPM | :103.4913 |
| 21 | 6- 9 | 1 | 46.00 | 29.49 | 1.00 | 31.00 | 123.0 | |
| | | 2 | 73.00 | 23.41 | | | | |
| | | 3 | 104.00 | 19.61 | | | | |
| | | | | | %EFF: | 32.26 | ISO1 DPM | :142.5796 |
| 22 | 6-10 | 1 | 37.00 | 32.88 | 1.00 | 32.47 | 118.0 | |
| | | 2 | 62.00 | 25.40 | | | | |
| | | 3 | 92.00 | 20.85 | | | | |
| | | | | | %EFF: | 33.75 | ISO1 DPM | :109.6415 |

Performed By: [signature] Date: 8/1/01

Reviewed By: [signature] Date: 8/8/01

| SAM | POS | CH | CPM | 2SIG% | TIME | EL TIME | AVG H# | ERR |
|---|---|---|---|---|---|---|---|---|
| 23 | 6-11 | 1 | 48.00 | 28.87 | 1.00 | 33.96 | 106.0 | |
| | | 2 | 72.00 | 23.57 | | | | |
| | | 3 | 110.00 | 19.07 | | | | |
| | | | | | %EFF: | 37.44 | ISO1 DPM | :128.2017 |
| 24 | 6-12 | 1 | 35.00 | 33.81 | 1.00 | 35.45 | 108.0 | |
| | | 2 | 59.00 | 26.04 | | | | |
| | | 3 | 87.00 | 21.44 | | | | |
| | | | | | %EFF: | 36.81 | ISO1 DPM | :95.07683 |
| 25 | 3- 1 | 1 | 38.00 | 32.44 | 1.00 | 36.99 | 93.0 | |
| | | 2 | 73.00 | 23.41 | | | | |
| | | 3 | 102.00 | 19.80 | | | | |
| | | | | | %EFF: | 41.64 | ISO1 DPM | :91.24783 |
| 26 | 3- 2 | 1 | 34.00 | 34.30 | 1.00 | 38.73 | 99.0 | |
| | | 2 | 58.00 | 26.26 | | | | |
| | | 3 | 101.00 | 19.90 | | | | |
| | | | | | %EFF: | 39.68 | ISO1 DPM | :85.68591 |
| 27 | 3- 3 | 1 | 49.00 | 28.57 | 1.00 | 40.22 | 110.0 | |
| | | 2 | 72.00 | 23.57 | | | | |
| | | 3 | 102.00 | 19.80 | | | | |
| | | | | | %EFF: | 36.19 | ISO1 DPM | :135.4007 |
| 28 | 3- 4 | 1 | 31.00 | 35.92 | 1.00 | 41.70 | 161.0 | |
| | | 2 | 60.00 | 25.82 | | | | |
| | | 3 | 86.00 | 21.57 | | | | |
| | | | | | %EFF: | 22.16 | ISO1 DPM | :139.8761 |

Performed By: [illegible] Date: 8/1/01

Reviewed By: [illegible] Date: 8/8/01

USER: 1 ID:SMEARS PRESET TIME: 1.00 WED 01 AUG 2001 11:38
SAMPLE REPEAT: 1 CYCLE REPEAT: 1 SCR:N RS232:N
H#: 1 AQC:N QCF:N RCM:N 2 PHASE MONITOR:N
CHANNEL 1-LL: 0 UL: 400 2SIGMA: 2.00 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0
CHANNEL 2-LL: 0 UL: 670 2SIGMA: 2.00 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0
CHANNEL 3-LL: 0 UL:1000 2SIGMA: 2.00 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0

SINGLE LABEL DPM, SET UP ON SUN 24 JUN 2001 16:19
UNKNOWN ID:SMEARS UNKNOWN REPLICATES: 1
UNKNOWN NORM FACTOR:0 1.00000 UNKNOWN UNITS:DPM
QUENCH MODE:H CALCULATE COEFF:N HALF LIFE(DAYS):N
QUENCH COEFF A: 4.328559 B:-0.0051270 C:-0.0000122 D:-0.0000000212
STANDARD ID:
QUENCH LIMITS LOW:90.00 HIGH:390.0

| SAM | POS | CH | CPM | 2SIG% | TIME | EL TIME | AVG H# | ERR |
|---|---|---|---|---|---|---|---|---|
| 1 | 3- 5 | 1 | 44.00 | 30.15 | 1.00 | 1.61 | 144.0 | |
| | | 2 | 74.00 | 23.25 | | | | |
| | | 3 | 92.00 | 20.85 | | | | |
| | | | | | %EFF:26.42 | ISO1 DPM | :166.5619 | |
| 2 | 3- 6 | 1 | 29.00 | 37.14 | 1.00 | 3.08 | 105.0 | |
| | | 2 | 51.00 | 28.01 | | | | |
| | | 3 | 89.00 | 21.20 | | | | |
| | | | | | %EFF:37.76 | ISO1 DPM | :76.80668 | |
| 3 | 3- 7 | 1 | 46.00 | 29.49 | 1.00 | 4.89 | 223.0 | |
| | | 2 | 80.00 | 22.36 | | | | |
| | | 3 | 88.00 | 21.32 | | | | |
| | | | | | %EFF:10.42 | ISO1 DPM | :441.5842 | |
| 4 | 3- 8 | 1 | 32.00 | 35.36 | 1.00 | 6.38 | 173.0 | |
| | | 2 | 63.00 | 25.20 | | | | |
| | | 3 | 85.00 | 21.69 | | | | |
| | | | | | %EFF:19.43 | ISO1 DPM | :164.7150 | |
| 5 | 3- 9 | 1 | 31.00 | 35.92 | 1.00 | 7.86 | 136.0 | |
| | | 2 | 67.00 | 24.43 | | | | |
| | | 3 | 83.00 | 21.95 | | | | |
| | | | | | %EFF:28.57 | ISO1 DPM | :108.5103 | |
| 6 | 3-10 | 1 | 42.00 | 30.86 | 1.00 | 9.33 | 117.0 | |
| | | 2 | 68.00 | 24.25 | | | | |
| | | 3 | 102.00 | 19.80 | | | | |
| | | | | | %EFF:34.05 | ISO1 DPM | :123.3597 | |

Performed By: [signature] Date: 8/1/01

Reviewed By: [signature] Date: 8/8/01

# Georgia Institute of Technology Research Reactor

# Final Survey Package 10

# Reactor Building and Stack

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Section 4 - Package 10 Removable Beta Contamination for the Exterior of Reactor Building and Stack (including lab reports) .....27

Section 5 – Package 10 H-3 Removable Beta Contamination Summary Data Table (including lab reports).....32

# Section 1

# Survey Package 10 Worksheet for the Reactor Building Exterior

Duratek Inc.
Survey Package Worksheet for Reactor Building Exterior
Georgia Institute of Technology Research Reactor

| | |
|---|---|
| Package Identification No.: 10 | Prepared by: Paul Jones |
| Location: Reactor Building and Stack Exterior | Date prepared: 06/14/2001 |
| Area Classification: Non-Suspect Affected | |

## Area Description

The survey area consists of the reactor building exterior walls and dome surfaces as well as the stack.

## Historical Information

No decontamination was required on the reactor building exterior.

## General Survey Instructions

(

1) Perform a minimum of 10% scan of accessible surfaces.
2) Obtain 1 direct beta measurement on the exterior of the reactor building for each 50 square meters of surface (See Special Instructions for the minimum number of readings required). Denote location of all readings on map.
3) Obtain 1 smear at each measurement location for gross alpha/beta analysis.
4) Obtain required smears for H-3 analysis (See Special Instructions for the minimum number of smears required). Denote location of all smears on map.

Use only the Package ID, L2, L7 and L8 codes when labeling smears for counting.

Use all location codes provided below when taking fixed beta readings.

| Special Instructions |
|---|
| Source check meters to Tc-99 for beta measurements.<br><br>Use gas flow proportional detector model numbers 43-68 and 43-106 for surveys.<br><br>The direct beta measurements and smears should be taken equidistant (where possible) throughout the survey area.<br><br>Perform a minimum of two 10 minute field backgrounds (one prior to taking field readings and one after completion of all field readings. |

| Survey performance (Initial and date as each survey is complete) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Location Code | | | | | General Description | Beta Scan | Direct Beta | 1 meter Gamma | Smear Gross α/β | LS Smear |
| L1 | L2 | L6 | L7 | L8 | | | | | | |
| Georgia Tech Research Reactor 2nd Floor Lower Walls and Floor | | | | | | | | | | |
| U2010 | 01EQ1 | B9999 | ZZZZZ | 1 thru 30 | Reactor Building Stack and Exterior | RGZ 7-20-01 | (30) RGZ 7-20-01 | N/A | (30) RGZ 7-25-01 | (30) RGZ 7-25-01 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | N | | | | | | |
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| Survey performance (Initial and date as [illegible] survey is complete) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Location Code | | | | | General Description | Beta Scan | Direct Beta | 1 meter Gamma | Smear Gross α/β | LS Smear |
| L1 | L2 | L6 | L7 | L8 | | | | | | |
| Georgia Tech Research Reactor 2nd Floor Lower Walls and Floor | | | | | | | | | | |
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P.[illegible] 3/13/02

| Package Review | |
|---|---|
| Date Package Completed | 5/27/02 |
| Package Reviewed by and Date | Paul A Jones 5/27/02 |

| Survey Comments |
|---|
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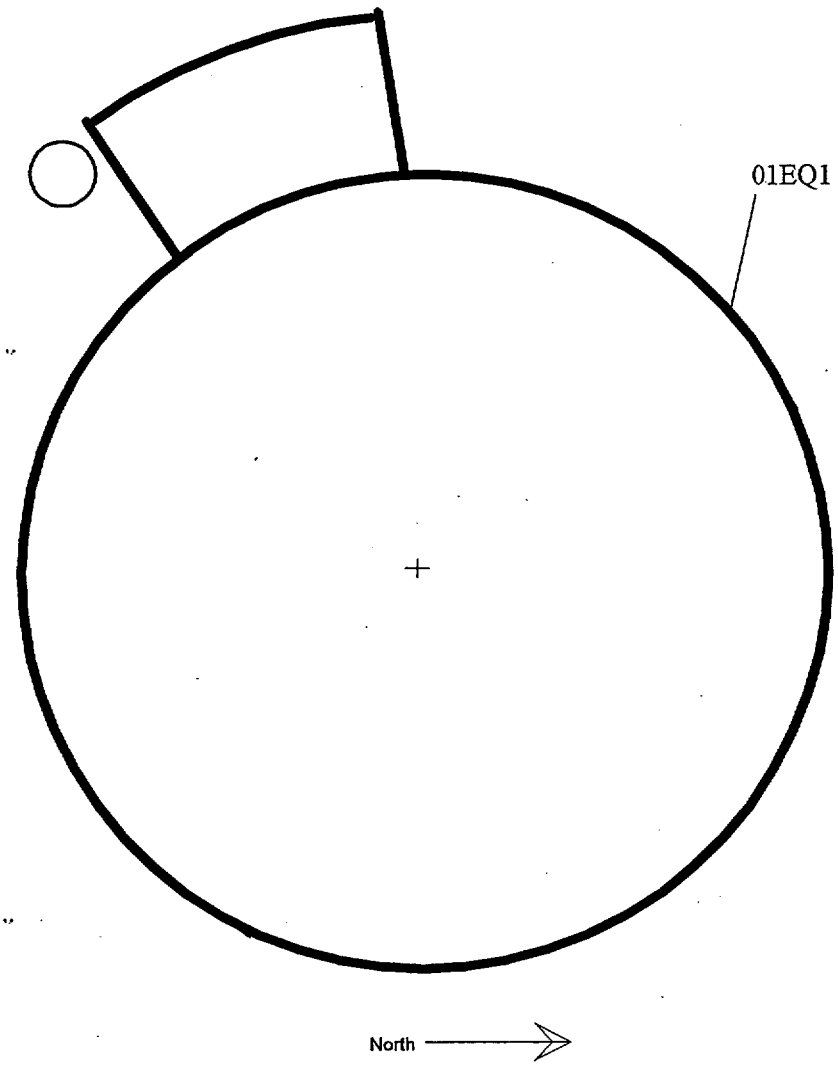
007

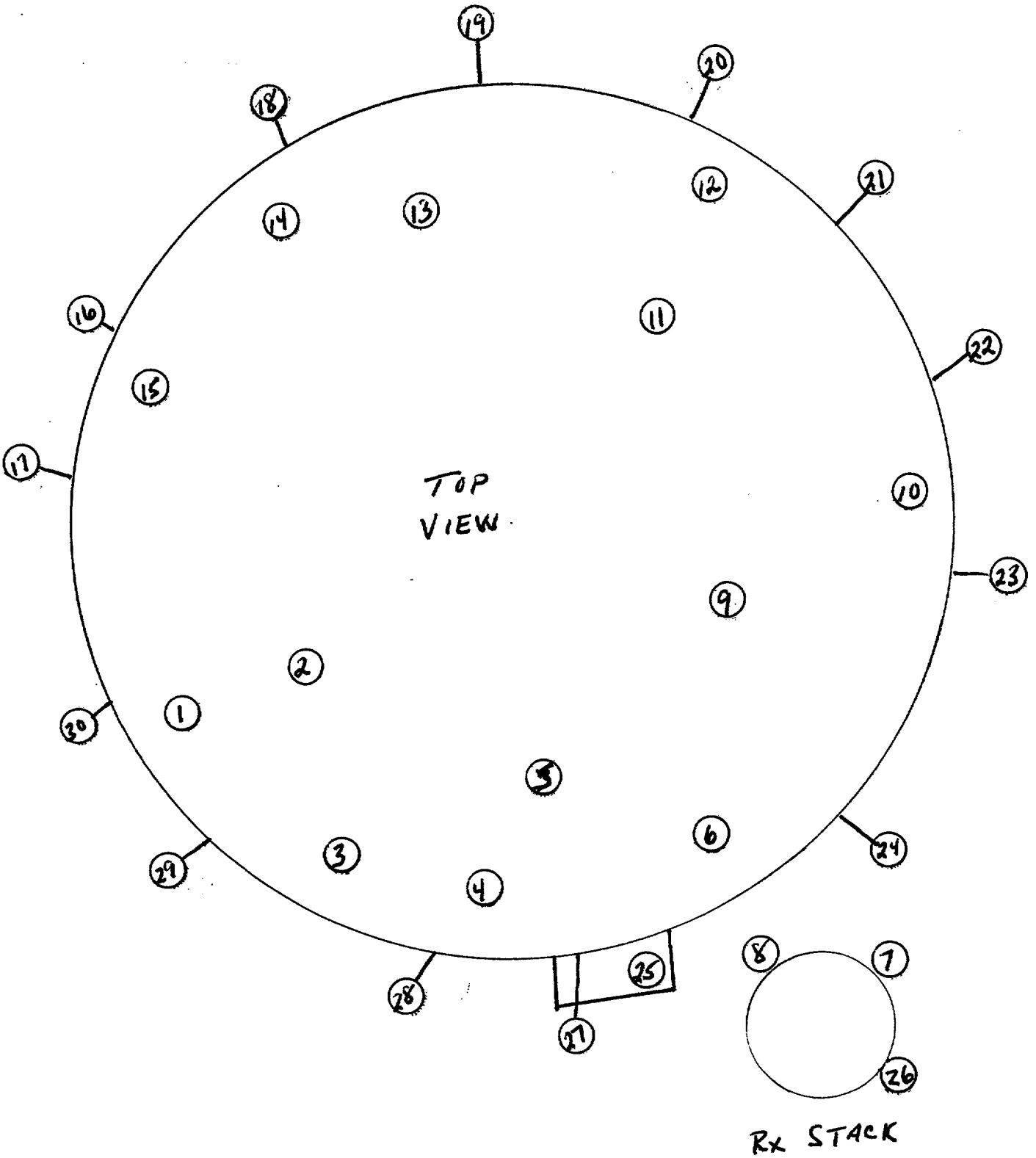
# Section 2

# Package 10
# Reactor Building Exterior Drawing

## Reactor Buidling Exterior



# U2010
## Rx BLDG EXTERIOR




(#) SURVEY POINTS (SEE L8 CODES)

# Section 3

# Package 10
# Direct Beta Survey for the Exterior of Reactor Building and Stack (including download reports)

Package U2010 Fixed Beta Survey Report (Exterior of Reactor Building and Stack)

| Desc. | File | Sample Number | Gross Counts | Count Time (sec) | Material Type | Detector Area ($cm^2$) | Surface | Count Type | Row | Location | Efficiency (dpm/cpm) | Background (cpm) | Activity ($dpm/100cm^2$) | Natural Background ($dpm/100cm^2$) | Net Activity ($dpm/100cm^2$) | MDA ($dpm/100cm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 183 | 5 | 109 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00001 | 0.225 | 331 | -14 | 0 | -14 | 400 |
| | 183 | 6 | 93 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00002 | 0.225 | 331 | -183 | 0 | -183 | 400 |
| | 183 | 7 | 103 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00003 | 0.225 | 331 | -78 | 0 | -78 | 400 |
| | 183 | 8 | 116 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00004 | 0.225 | 331 | 60 | 0 | 60 | 400 |
| | 183 | 9 | 122 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00005 | 0.225 | 331 | 123 | 0 | 123 | 400 |
| | 183 | 10 | 110 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00006 | 0.225 | 331 | -4 | 0 | -4 | 400 |
| | 183 | 11 | 80 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00007 | 0.225 | 331 | -321 | 0 | -321 | 400 |
| | 183 | 12 | 113 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00008 | 0.225 | 331 | 28 | 0 | 28 | 400 |
| | 183 | 13 | 105 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00009 | 0.225 | 331 | -56 | 0 | -56 | 400 |
| | 183 | 14 | 132 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00010 | 0.225 | 331 | 229 | 0 | 229 | 400 |
| | 183 | 15 | 113 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00011 | 0.225 | 331 | 28 | 0 | 28 | 400 |
| | 183 | 16 | 154 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00012 | 0.225 | 331 | 462 | 0 | 462 | 400 |
| | 183 | 17 | 124 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00013 | 0.225 | 331 | 145 | 0 | 145 | 400 |
| | 183 | 18 | 87 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00014 | 0.225 | 331 | -247 | 0 | -247 | 400 |
| | 183 | 19 | 112 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00015 | 0.225 | 331 | 18 | 0 | 18 | 400 |
| | 183 | 20 | 91 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00016 | 0.225 | 331 | -205 | 0 | -205 | 400 |
| | 183 | 21 | 156 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00017 | 0.225 | 331 | 483 | 0 | 483 | 400 |
| | 183 | 22 | 90 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00018 | 0.225 | 331 | -215 | 0 | -215 | 400 |
| | 183 | 23 | 133 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00019 | 0.225 | 331 | 240 | 0 | 240 | 400 |
| | 183 | 24 | 95 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00020 | 0.225 | 331 | -162 | 0 | -162 | 400 |
| | 183 | 25 | 81 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00021 | 0.225 | 331 | -310 | 0 | -310 | 400 |
| | 183 | 26 | 124 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00022 | 0.225 | 331 | 145 | 0 | 145 | 400 |
| | 183 | 27 | 143 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00023 | 0.225 | 331 | 346 | 0 | 346 | 400 |
| | 183 | 28 | 121 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00024 | 0.225 | 331 | 113 | 0 | 113 | 400 |
| | 183 | 33 | 108 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00026 | 0.225 | 331 | -25 | 0 | -25 | 400 |
| | 183 | 34 | 123 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00027 | 0.225 | 331 | 134 | 0 | 134 | 400 |
| | 183 | 35 | 84 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00028 | 0.225 | 331 | -279 | 0 | -279 | 400 |
| | 183 | 36 | 112 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00029 | 0.225 | 331 | 18 | 0 | 18 | 400 |
| | 183 | 37 | 97 | 20 | B9999 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00030 | 0.225 | 331 | -141 | 0 | -141 | 400 |
| | 184 | 52 | 203 | 20 | B0001 | 126 | 01EQ1 | FLDCT | ZZZZZ | 00025 | 0.225 | 437 | 607 | 346 | 261 | 501 |
| | | | | | | | | | | | | | | # Measurements | 30 | |
| | | | | | | | | | | | | | | Average | 20 | $dpm/100cm^2$ |
| | | | | | | | | | | | | | | Maximum | 483 | $dpm/100cm^2$ |
| | | | | | | | | | | | | | | STD DEV | 212 | $dpm/100cm^2$ |
| | | | | | | | | | | | | | | 95% CL on Mean | 95 | $dpm/100cm^2$ |

The "net activity" (dpm/100 $cm^2$) presented on the following download report is raw data. It has not been corrected, if required, for the natural radioactivity that may be present in materials of construction. In addition the background used to correct for ambient exposure rates, instrument noise, etc. may need to be adjusted if more than one surface type was included in the download.

See the enclosed spreadsheets for the corrected results.

File #183

## ATTACHMENT 6.14
## SURVEY DOWNLOAD DATA SHEET

Download Technician: Print Name: D. Schumacher Signature: [signature] Station: 2 File: 183

Serial No. Verification: Model 2350: ☐ Detector: ☐ Problems: ☐ (See Comments)

Survey Technician(s):
Print Name: RALEIGH User ID: RAL 7103 Signature: R.G. [signature] Date: 7-19-01

Print Name: _____ User ID _____ Signature: _____ Date: _____

Survey Unit Description: U2010: Rx BLDG EXTERIOR
*(Example: Survey Package + description i.e. D16, Building 43, Area 09, Room 100, Floor - Grid Locations A1 through A7)*

Instrument Model and Serial No.: Model 2350 ☐ Model 2350-1 ☒: 129433

Instrument and Detector Calibration Due Dates: Survey Meter: 10/24/01 Detector: 12-21-01

Type Of Survey: ☒ Term Survey ☐ Characterization ☐ Information Only
☐ Other (explain):

| Type of Measurement | Detector Serial Number | Detector Model Number | Detector Efficiency | Source Mean BKG Value | Pre & Post Use Info | |
|---|---|---|---|---|---|---|
| | | | | | Pre File No. | Post File No. |
| ☐ Beta β | | 43-106B | | | | |
| ☒ Beta β | ~~059~~ 095080 | 43-68B | .225 | 5493/413 | 183 | 183 |
| ☐ Alpha α | | 43-68A | | | | |
| ☐ Gamma γ | | 44-2 | N/A | | | |
| | | | | | | |

Local Area Background Measurements — MEAN Value in cpm

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| β Beta | 1 2875 | 2 4221 | 3 2832 | 4 | 5 | 6 | 331 |
| α Alpha | 1 | 2 | 3 | 4 | 5 | 6 | |

COMMENTS: _____

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

Direct Beta Survey Report, dpm/100 cm2

| | | | |
|---|---|---|---|
| File Number: 183 | Survey Description: U2010: RX BUILDING EXTERIOR | | |
| Survey Reason: TERMINATION | User ID: RAL7103 | Technician name: R.A. Leigh | |
| Instrument Model: 2350-1 | S/N: 129433 | Calibration Due: 10/24/01 | Group: 2 |
| Detector Model: 43-68 | Detector S/N: 095080 | Type: 126 cm2 Gas Proportional Detector | |
| Background: 331 cpm | Beta Efficiency: .225 | | Survey Date: 7/12/01 |

Pre and Post source checks are included on this download: Yes ✓ No ___
If No is answered, then list the Download Files which include the Pre and Post source checks.
Pre File #: _____ Post File #: _____

Technician Review:

I have reveiwed this cover sheet and 2 pages of the report, 1 pages of comments, and 1 graph.

I performed this survey: R.A. LEIGH (Print name) / R.A. Leigh (Signature) Date: 7-19-01

and,

I performed this survey: _____ (Print name) / _____ (Signature) Date: _____

Corrections and Reasons:

Comment Resolution:

Survey Reviewed and Approved by: PAUL JONES (Print name) / Paul Jones (Signature) Date: 7/24/01

Survey Date: 7/12/01 Report Date: 7/14/01 Page: 1
File: 183 Station: 2

Comments

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 0 |
|---|---|---|---|---|---|
| | U2010 | 01EQ1 | TAT01 | 02200 | Det Cal Due: 12/21/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| FLDBK | B9999 | ZZZZZ | 00000 | 4 | 600 | 2875 | -153 | |
| FLDBK | B0001 | ZZZZZ | 00000 | 31 | 600 | 4221 | 321 | |
| FLDBK | B9999 | ZZZZZ | 00000 | 38 | 600 | 2832 | -169 | |
| | | | | | | Group Average: | -0 | |
| FLDCT | B9999 | ZZZZZ | 00001 | 5 | 20 | 109 | -14 | |
| FLDCT | B9999 | ZZZZZ | 00002 | 6 | 20 | 93 | -183 | |
| FLDCT | B9999 | ZZZZZ | 00003 | 7 | 20 | 103 | -78 | |
| FLDCT | B9999 | ZZZZZ | 00004 | 8 | 20 | 116 | 60 | |
| FLDCT | B9999 | ZZZZZ | 00005 | 9 | 20 | 122 | 123 | |
| FLDCT | B9999 | ZZZZZ | 00006 | 10 | 20 | 110 | -4 | |
| FLDCT | B9999 | ZZZZZ | 00007 | 11 | 20 | 80 | -321 | |
| FLDCT | B9999 | ZZZZZ | 00008 | 12 | 20 | 113 | 28 | |
| FLDCT | B9999 | ZZZZZ | 00009 | 13 | 20 | 105 | -56 | |
| FLDCT | B9999 | ZZZZZ | 00010 | 14 | 20 | 132 | 229 | |
| FLDCT | B9999 | ZZZZZ | 00011 | 15 | 20 | 113 | 28 | |
| FLDCT | B9999 | ZZZZZ | 00012 | 16 | 20 | 154 | 462 | |
| FLDCT | B9999 | ZZZZZ | 00013 | 17 | 20 | 124 | 145 | |
| FLDCT | B9999 | ZZZZZ | 00014 | 18 | 20 | 87 | -247 | |
| FLDCT | B9999 | ZZZZZ | 00015 | 19 | 20 | 112 | 18 | |
| FLDCT | B9999 | ZZZZZ | 00016 | 20 | 20 | 91 | -205 | |
| FLDCT | B9999 | ZZZZZ | 00017 | 21 | 20 | 156 | 483 | |
| FLDCT | B9999 | ZZZZZ | 00018 | 22 | 20 | 90 | -215 | |
| FLDCT | B9999 | ZZZZZ | 00019 | 23 | 20 | 133 | 240 | |
| FLDCT | B9999 | ZZZZZ | 00020 | 24 | 20 | 95 | -162 | |
| FLDCT | B9999 | ZZZZZ | 00021 | 25 | 20 | 81 | -310 | |
| FLDCT | B9999 | ZZZZZ | 00022 | 26 | 20 | 124 | 145 | |
| FLDCT | B9999 | ZZZZZ | 00023 | 27 | 20 | 143 | 346 | |
| FLDCT | B9999 | ZZZZZ | 00024 | 28 | 20 | 121 | 113 | |
| FLDCT | B9999 | ZZZZZ | 00026 | 33 | 20 | 108 | -25 | |
| FLDCT | B9999 | ZZZZZ | 00027 | 34 | 20 | 123 | 134 | |
| FLDCT | B9999 | ZZZZZ | 00028 | 35 | 20 | 84 | -279 | |
| FLDCT | B9999 | ZZZZZ | 00029 | 36 | 20 | 112 | 18 | |
| FLDCT | B9999 | ZZZZZ | 00030 | 37 | 20 | 97 | -141 | |
| | | | | | | Group Average: | 11 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 0 |
|---|---|---|---|---|---|
| | ZZZZZ | EZ260 | TAT01 | 02200 | Det Cal Due: 12/21/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PRB00 | ZZZZZ | ZZZZZ | 00000 | 1 | 60 | 5778 | 19213 | * |
| PRB00 | ZZZZZ | ZZZZZ | 00000 | 2 | 60 | 6089 | 20310 | * |
| PRB00 | ZZZZZ | ZZZZZ | 00000 | 3 | 60 | 5850 | 19467 | * |
| | | | | | | Group Average: | 19664 | |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 44 | 60 | 6029 | 20099 | * |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 45 | 60 | 6144 | 20504 | * |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 46 | 60 | 6075 | 20261 | * |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 54 | 60 | 6088 | 20307 | * |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 55 | 60 | 6302 | 21062 | * |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 56 | 60 | 6120 | 20420 | * |
| | | | | | | Group Average: | 20442 | |

* Hi flag set at 600 dpm/100 cm2

Survey Date: 7/12/01 Report Date: 7/14/01 Page: 2
File: 183 Station: 2

Comments

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 0 |
|---|---|---|---|---|---|
| | ZZZZZ | ZZZZZ | TAT01 | 02200 | Det Cal Due: 12/21/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PRBBK | ZZZZZ | ZZZZZ | 00000 | 0 | 600 | 4133 | 290 | |
| | | | | | | Group Average: | 290 | |
| PTBBK | ZZZZZ | ZZZZZ | 00000 | 43 | 600 | 4235 | 326 | |
| PTBBK | ZZZZZ | ZZZZZ | 00000 | 53 | 600 | 4401 | 385 | |
| | | | | | | Group Average: | 356 | |

Total Number of Measurements on this Report: 44

NOTE: This report is grouped by:
Package (L1) (Package number)
Setup number (Detector parameters)
Det Type (L4) (GM pancake-flat surface, Beta 3.5-12" pipe, gamma at 1 m, etc.)
Reason (L3-345) (Char survey, source check, final survey, etc.)
Surface Cat (L2) (Wall, floor, drain, penetration, etc.)
Count Type (L5) (Field count, bkg, pre-, post-, etc.)
Bkgd Sub (L6) (Material code, i.e., wood, iron, concr, etc.)



* Hi flag set at 600 dpm/100 cm2

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

7/14/01 Comments Report for File 183 Station: 2

| Comment Number | Comment |
|---|---|
| 1 | Deleted sample numbers from 39 to 42. SEE FILE 181 FOR THESE DATA POINTS. |
| 2 | Deleted sample numbers from 47 to 52. SEE FILE # 184 FOR THESE DATA POINTS. |
| 3 | Deleted sample numbers from 32 to 32. Because DATA POINT TAKEN TWICE BY MISTAKE. SEE SAMPLE # 33. |
| 4 | Deleted sample numbers from 29 to 30. Because the samples were not taken in location shown on map. See file 184 for resurvey of (L8) location 25. |

GTS:0143 :C:\PDOX35\M2350\COMMENTS:R1

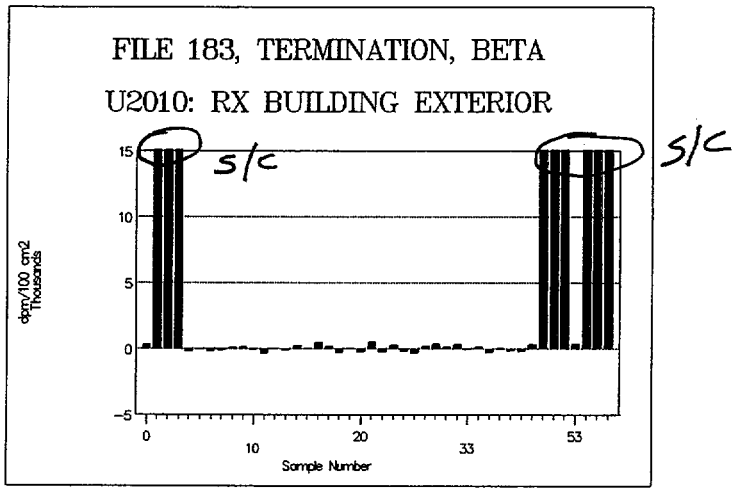
GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

7/14/2001 Graph of File 183 Station: 2

Survey Date: 7/12/2001 Survey Start Time: 07:37:48

Description: U2010: RX BUILDING EXTERIOR




Flag set for 600 dpm/100 cm2. Review values greater than this value.

Review this graph for visual outliers.

Mark outliers, source checks and backgrounds on the graph on this page.

The "net activity" (dpm/100 $cm^2$) presented on the following download report is raw data. It has not been corrected, if required, for the natural radioactivity that may be present in materials of construction. In addition the background used to correct for ambient exposure rates, instrument noise, etc. may need to be adjusted if more than one surface type was included in the download.

See the enclosed spreadsheets for the corrected results.

File #184

## ATTACHMENT 6.14
## SURVEY DOWNLOAD DATA SHEET

Download Technician: Print Name: D. Schumaker Signature: [signature] Station: 2 File: 184

Serial No. Verification: Model 2350: ☐ Detector: ☐ Problems: ☐ (See Comments)

Survey Technician(s):
Print Name: RA LEIGH User ID RAL 7103 Signature: RALeigh Date: 7-18-01

Print Name: _____ User ID _____ Signature: _____ Date: _____

Survey Unit Description: U2010: Rx Bldg Exterior
*(Example: Survey Package + description i.e. D16, Building 43, Area 09, Room 100, Floor - Grid Locations A1 through A7)*

Instrument Model and Serial No.: Model 2350 ☐ Model 2350-1 ☒: 129433

Instrument and Detector Calibration Due Dates: Survey Meter: 10-24-01 Detector: 12-21-01

Type Of Survey: ☒ Term Survey ☐ Characterization ☐ Information Only
☐ Other (explain):

| Type of Measurement | Detector Serial Number | Detector Model Number | Detector Efficiency | Source Mean BKG Value | Pre & Post Use Info | |
|---|---|---|---|---|---|---|
| | | | | | Pre File No. | Post File No. |
| ☐ Beta β | | 43-106B | | | | |
| ☒ Beta β | 095080 | 43-68B | .225 | 5659/424 | | |
| ☐ Alpha α | | 43-68A | | | | |
| ☐ Gamma γ | | 44-2 | N/A | | | |
| | | | | | | |

Local Area Background Measurements — MEAN Value in cpm

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| β Beta | 1 3554 | 2 3244 | 3 4369 | 4 | 5 | 6 | 372 |
| α Alpha | 1 | 2 | 3 | 4 | 5 | 6 | |

COMMENTS: _____

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

Direct Beta Survey Report, dpm/100 cm2

| | | | |
|---|---|---|---|
| File Number: 184 | Survey Description: U2010: RX BUILDING EXTERIOR | | |
| Survey Reason: TERMINATION | User ID: RAL7103 | Technician name: R.A. Leigh | |
| Instrument Model: 2350-1 | S/N: 129433 | Calibration Due: 10/24/01 | Group: 2 |
| Detector Model: 43-68 | Detector S/N: 095080 | Type: 126 cm2 Gas Proportional Detector | |
| Background: 372 cpm | Beta Efficiency: .225 | | Survey Date: 7/12/01 |

Pre and Post source checks are included on this download: Yes ✓ No ___
If No is answered, then list the Download Files which include the Pre and Post source checks.
Pre File #: _____ Post File #: _____

Technician Review:

I have reveiwed this cover sheet and 2 pages of the report, 1 pages of comments, and 1 graph.

I performed this survey: R.A. LEIGH (Print name) / R.A. Leigh (Signature) Date: 7-18-01

and,

I performed this survey: _____ (Print name) / _____ (Signature) Date: _____

Corrections and Reasons:

Comment Resolution:

Survey Reviewed and Approved by: PAUL JONES (Print name) / Paul Jones (Signature) Date: 7/24/01

Survey Date: 7/12/01 Report Date: 7/14/01 Page: 1
File: 184 Station: 2

Comments

① This reading taken on concrete adjacent to stack. The field background of 436.9 cpm should be used. No reprint.
OK P. Jones 7/24/01

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 0 |
|---|---|---|---|---|---|
| | U2010 | 01EQ1 | TAT01 | 02200 | Det Cal Due: 12/21/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | Hi |
|---|---|---|---|---|---|---|---|---|
| FLDBK | B9999 | ZZZZZ | 00017 | 47 | 600 | 3554 | -59 | |
| FLDBK | B9999 | ZZZZZ | 00012 | 49 | 600 | 3244 | -168 | |
| FLDBK | B0001 | ZZZZZ | 00025 | 51 | 600 | 4369 | 229 | |
| | | | | | | Group Average: | 1 | |
| FLDCT | B9999 | ZZZZZ | 00017 | 48 | 20 | 126 | 21 | |
| FLDCT | B9999 | ZZZZZ | 00012 | 50 | 20 | 106 | -190 | |
| FLDCT | B0001 | ZZZZZ | 00025 | 52 | 20 | 203 | 836 ① | * |
| | | | | | | Group Average: | 222 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 0 |
|---|---|---|---|---|---|
| | ZZZZZ | EZ260 | TAT01 | 02200 | Det Cal Due: 12/21/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | Hi |
|---|---|---|---|---|---|---|---|---|
| PRB00 | ZZZZZ | ZZZZZ | 00000 | 1 | 60 | 5778 | 19069 | * |
| PRB00 | ZZZZZ | ZZZZZ | 00000 | 2 | 60 | 6089 | 20166 | * |
| PRB00 | ZZZZZ | ZZZZZ | 00000 | 3 | 60 | 5850 | 19323 | * |
| | | | | | | Group Average: | 19519 | |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 44 | 60 | 6029 | 19954 | * |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 45 | 60 | 6144 | 20360 | * |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 46 | 60 | 6075 | 20116 | * |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 54 | 60 | 6088 | 20162 | * |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 55 | 60 | 6302 | 20917 | * |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 56 | 60 | 6120 | 20275 | * |
| | | | | | | Group Average: | 20297 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 0 |
|---|---|---|---|---|---|
| | ZZZZZ | ZZZZZ | TAT01 | 02200 | Det Cal Due: 12/21/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | Hi |
|---|---|---|---|---|---|---|---|---|
| PRBBK | ZZZZZ | ZZZZZ | 00000 | 0 | 600 | 4133 | 146 | |
| | | | | | | Group Average: | 146 | |
| PTBBK | ZZZZZ | ZZZZZ | 00000 | 43 | 600 | 4235 | 182 | |
| PTBBK | ZZZZZ | ZZZZZ | 00000 | 53 | 600 | 4401 | 240 | |
| | | | | | | Group Average: | 211 | |

* Hi flag set at 600 dpm/100 cm2

Survey Date: 7/12/01 Report Date: 7/14/01 Page: 2
File: 184 Station: 2

Comments

Total Number of Measurements on this Report: 18

NOTE: This report is grouped by:
Package (L1) (Package number)
Setup number (Detector parameters)
Det Type (L4) (GM pancake-flat surface, Beta 3.5-12" pipe, gamma at 1 m, etc.)
Reason (L3-345) (Char survey, source check, final survey, etc.)
Surface Cat (L2) (Wall, floor, drain, penetration, etc.)
Count Type (L5) (Field count, bkg, pre-, post-, etc.)
Bkgd Sub (L6) (Material code, i.e., wood, iron, concr, etc.)



* Hi flag set at 600 dpm/100 cm2

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

7/14/01 Comments Report for File 184 Station: 2

| Comment Number | Comment |
|---|---|
| 1 | Deleted sample numbers from 4 to 38. SEE FILE # 183 FOR THESE DATA POINTS. |
| 2 | Deleted sample numbers from 39 to 42. SEE FILE # 181 FOR SURVEY RESULTS. |

GTS:0143 :C:\PDOX35\M2350\COMMENTS:R1

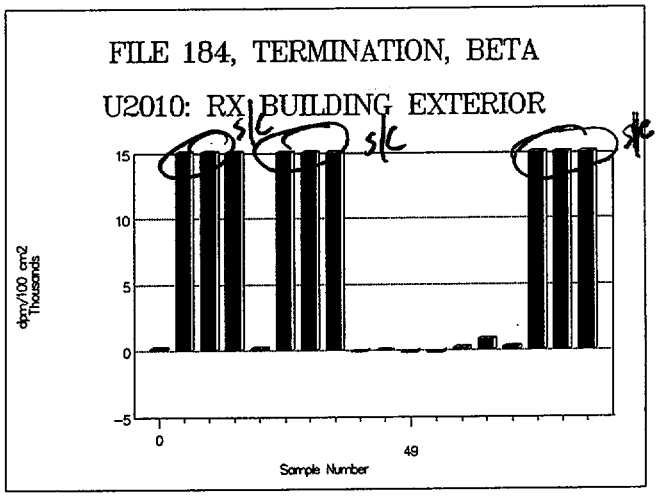
GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

7/14/2001 Graph of File 184 Station: 2

Survey Date: 7/12/2001 Survey Start Time: 14:10:00

Description: U2010: RX BUILDING EXTERIOR




Flag set for 600 dpm/100 cm2. Review values greater than this value.

Review this graph for visual outliers.

Mark outliers, source checks and backgrounds on the graph on this page.

# Section 4

## Package 10
## Removable Beta Contamination for the Exterior of Reactor Building and Stack (including lab reports)

Removable Beta Contamination Package U2010 (Exterior of Reactor Building and Stack)

| Desc. | Gross Counts | Count Time (sec) | Sample Area ($cm^2$) | Surface | Count Type | Row | Location | Efficiency (dpm/cpm) | Background (cpm) | Activity ($dpm/100cm^2$) | Net Activity ($dpm/100cm^2$) | MDA ($dpm/100cm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| | 9 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00001 | 0.3425 | 2 | 12 | 12 | 16 |
| | 9 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00002 | 0.3425 | 2 | 13 | 13 | 16 |
| | 8 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00003 | 0.3425 | 2 | 11 | 11 | 16 |
| | 6 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00004 | 0.3425 | 2 | 6 | 6 | 16 |
| | 7 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00005 | 0.3425 | 2 | 8 | 8 | 16 |
| | 3 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00006 | 0.3425 | 2 | 1 | 1 | 16 |
| | 8 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00007 | 0.3425 | 2 | 11 | 11 | 16 |
| | 5 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00008 | 0.3425 | 2 | 5 | 5 | 16 |
| | 5 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00009 | 0.3425 | 2 | 3 | 3 | 16 |
| | 9 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00010 | 0.3425 | 2 | 13 | 13 | 16 |
| | 4 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00011 | 0.3425 | 2 | 2 | 2 | 16 |
| | 3 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00012 | 0.3425 | 2 | 1 | 1 | 16 |
| | 4 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00013 | 0.3425 | 2 | 2 | 2 | 16 |
| | 4 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00014 | 0.3425 | 2 | 2 | 2 | 16 |
| | 2 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00015 | 0.3425 | 2 | -2 | -2 | 16 |
| | 2 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00016 | 0.3425 | 2 | -1 | -1 | 16 |
| | 4 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00017 | 0.3425 | 2 | 3 | 3 | 16 |
| | 3 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00018 | 0.3425 | 2 | 1 | 1 | 16 |
| | 5 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00019 | 0.3425 | 2 | 5 | 5 | 16 |
| | 2 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00020 | 0.3425 | 2 | -2 | -2 | 16 |
| | 4 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00021 | 0.3425 | 2 | 2 | 2 | 16 |
| | 3 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00022 | 0.3425 | 2 | 1 | 1 | 16 |
| | 4 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00023 | 0.3425 | 2 | 2 | 2 | 16 |
| | 3 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00024 | 0.3425 | 2 | 0 | 0 | 16 |
| | 3 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00025 | 0.3425 | 2 | -1 | -1 | 16 |
| | 3 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00026 | 0.3425 | 2 | 1 | 1 | 16 |
| | 1 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00027 | 0.3425 | 2 | -4 | -4 | 16 |
| | 5 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00028 | 0.3425 | 2 | 5 | 5 | 16 |
| | 7 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00029 | 0.3425 | 2 | 9 | 9 | 16 |
| | 26 | 90 | 100 | 01EQ1 | FLDCT | ZZZZZ | 00030 | 0.3425 | 2 | 45 | 45 | 16 |
| | | | | | | | | | | | | |
| | | | | | | | | | # Measurements | | 30 | |
| | | | | | | | | | | Average | 5 | $dpm/100cm^2$ |
| | | | | | | | | | | Maximum | 45 | $dpm/100cm^2$ |
| | | | | | | | | | | STD DEV | 9 | $dpm/100cm^2$ |
| | | | | | | | | | 95% CL on Mean | | 8 | $dpm/100cm^2$ |

FINAL SURVEY 01E01 [7] PIN 10

PIC IPC9025 216712

| SN | RPT | ID | ALPHA COUNTS | ALPHA NET CPM | ALPHA DPM | ALPHA LIMITS | BETA COUNTS | BETA NET CPM | BETA DPM | BETA LIMITS | DATE | TIME |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Eff: 34.97% Bkg: 0.00 cpm MDA: 5.17 dpm | | | | Eff: 34.25% Bkg: 1.70 cpm MDA: 19.73 dpm | | | | | |
| 001 | 00 | 1 | 1 | 0.67 | 1.91 | | 9 | 4.10 | 11.97 | | 07-12-2001 | 12:29:24 |
| 002 | 00 | 2 | 0 | 0.00 | 0.00 | | 9 | 4.30 | 12.55 | | 07-12-2001 | 12:31:23 |
| 003 | 00 | 3 | 0 | 0.00 | 0.00 | | 8 | 3.63 | 10.61 | | 07-12-2001 | 12:33:22 |
| 004 | 00 | 4 | 1 | 0.67 | 1.91 | | 6 | 2.10 | 6.13 | | 07-12-2001 | 12:35:21 |
| 005 | 00 | 5 | 1 | 0.67 | 1.91 | | 7 | 2.77 | 8.08 | | 07-12-2001 | 12:37:20 |
| 006 | 00 | 6 | 0 | 0.00 | 0.00 | | 3 | 0.30 | 0.88 | | 07-12-2001 | 12:39:19 |
| 007 | 00 | 7 | 0 | 0.00 | 0.00 | | 8 | 3.63 | 10.61 | | 07-12-2001 | 12:41:18 |
| 008 | 00 | 8 | 0 | 0.00 | 0.00 | | 5 | 1.63 | 4.77 | | 07-12-2001 | 12:43:17 |
| 009 | 00 | 9 | 3 | 2.00 | 5.72 | | 5 | 1.04 | 3.03 | | 07-12-2001 | 12:45:16 |
| 010 | 00 | 10 | 0 | 0.00 | 0.00 | | 9 | 4.30 | 12.55 | | 07-12-2001 | 12:47:15 |
| 011 | 00 | 11 | 2 | 1.33 | 3.81 | | 4 | 0.57 | 1.66 | | 07-12-2001 | 12:49:14 |
| 012 | 00 | 12 | 0 | 0.00 | 0.00 | | 3 | 0.30 | 0.88 | | 07-12-2001 | 12:51:13 |

Performed By: [signature] Date: 7/12/01

Reviewed By: [signature] Date: 7/12 01

FINAL SURVEY 01EQ1 [Z] PIN 10

PIC IPC9025 216712

| | | | ALPHA | | | | BETA | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Eff: 34.97% | Bkg: 0.00 cpm | MDA: 5.17 dpm | | Eff: 34.25% | Bkg: 1.70 cpm | MDA: 19.73 dpm | | | |
| SN | RPT | ID | COUNTS | NET CPM | DPM | LIMITS | COUNTS | NET CPM | DPM | LIMITS | DATE | TIME |
| 013 | 00 | 13 | 2 | 1.33 | 3.81 | | 4 | 0.57 | 1.66 | | 07-12-2001 | 12:54:51 |
| 014 | 00 | 14 | 1 | 0.67 | 1.91 | | 4 | 0.77 | 2.24 | | 07-12-2001 | 12:56:49 |
| 015 | 00 | 15 | 1 | 0.67 | 1.91 | | 2 | -0.57 | -1.65 | | 07-12-2001 | 12:58:48 |
| 016 | 00 | 16 | 0 | 0.00 | 0.00 | | 2 | -0.37 | -1.07 | | 07-12-2001 | 13:00:47 |
| 017 | 00 | 17 | 0 | 0.00 | 0.00 | | 4 | 0.97 | 2.82 | | 07-12-2001 | 13:02:46 |

Performed By: _____ Date: 7/12/01

Reviewed By: _____ Date: 7/12/01

FINAL SURVEY 01EQ1 [Z] PIN 10
PIC IPC9025 216712

| | | | ALPHA | | | | BETA | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Eff: 34.97% Bkg: 0.00 cpm MDA: 5.17 dpm | | | | Eff: 34.25% Bkg: 1.70 cpm MDA: 19.73 dpm | | | | | |
| SN | RPT | ID | COUNTS | NET CPM | DPM | LIMITS | COUNTS | NET CPM | DPM | LIMITS | DATE | TIME |
| 018 | 00 | 18 | 0 | 0.00 | 0.00 | | 3 | 0.30 | 0.88 | | 07-12-2001 | 13:06:00 |
| 019 | 00 | 19 | 0 | 0.00 | 0.00 | | 5 | 1.63 | 4.77 | | 07-12-2001 | 13:07:58 |
| 020 | 00 | 20 | 1 | 0.67 | 1.91 | | 2 | -0.57 | -1.65 | | 07-12-2001 | 13:09:57 |
| 021 | 00 | 21 | 1 | 0.67 | 1.91 | | 4 | 0.77 | 2.24 | | 07-12-2001 | 13:11:56 |
| 022 | 00 | 22 | 0 | 0.00 | 0.00 | | 3 | 0.30 | 0.88 | | 07-12-2001 | 13:13:55 |
| 023 | 00 | 23 | 1 | 0.67 | 1.91 | | 4 | 0.77 | 2.24 | | 07-12-2001 | 13:15:54 |
| 024 | 00 | 24 | 2 | 1.33 | 3.81 | | 3 | -0.10 | -0.29 | | 07-12-2001 | 13:17:53 |
| 025 | 00 | 25 | 3 | 2.00 | 5.72 | | 3 | -0.30 | -0.87 | | 07-12-2001 | 13:19:52 |
| 026 | 00 | 26 | 0 | 0.00 | 0.00 | | 3 | 0.30 | 0.88 | | 07-12-2001 | 13:21:51 |
| 027 | 00 | 27 | 1 | 0.67 | 1.91 | | 1 | -1.23 | -3.60 | | 07-12-2001 | 13:23:50 |
| 028 | 00 | 28 | 0 | 0.00 | 0.00 | | 5 | 1.63 | 4.77 | | 07-12-2001 | 13:25:49 |
| 029 | 00 | 29 | 0 | 0.00 | 0.00 | | 7 | 2.97 | 8.66 | | 07-12-2001 | 13:27:48 |
| 030 | 00 | 30 | 1 | 0.67 | 1.91 | | 26 | 15.43 | 45.06 | | 07-12-2001 | 13:29:47 |

Performed By: _____ Date: 7/12/01

Reviewed By: _____ Date: 7/12/01

# Section 5

# Package 10
# H-3 Removable Beta Contamination
# Summary Data Table (including lab reports)

H-3 Removable Beta Contamination Summary Data Table PKG 10

| Carrier No. | CPM | Count Time (sec) | Sample Area ($cm^2$) | Surface | Row | Location | Beta Efficiency | Beta Background (cpm) | Activity ($dpm/100cm^2$) | Net Activity ($dpm/100cm^2$) | MDA ($dpm/100cm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 29 | 60 | 100 | 01EQ1 | ZZZZZ | 00001 | 0.119 | 0.00 | 243 | 243 | 23 |
| 2 | 44 | 60 | 100 | 01EQ1 | ZZZZZ | 00002 | 0.177 | 0.00 | 248 | 248 | 15 |
| 3 | 33 | 60 | 100 | 01EQ1 | ZZZZZ | 00003 | 0.141 | 0.00 | 234 | 234 | 19 |
| 4 | 35 | 60 | 100 | 01EQ1 | ZZZZZ | 00004 | 0.215 | 0.00 | 163 | 163 | 13 |
| 5 | 31 | 60 | 100 | 01EQ1 | ZZZZZ | 00005 | 0.190 | 0.00 | 163 | 163 | 14 |
| 6 | 38 | 60 | 100 | 01EQ1 | ZZZZZ | 00006 | 0.146 | 0.00 | 260 | 260 | 19 |
| 7 | 31 | 60 | 100 | 01EQ1 | ZZZZZ | 00007 | 0.217 | 0.00 | 143 | 143 | 12 |
| 8 | 25 | 60 | 100 | 01EQ1 | ZZZZZ | 00008 | 0.234 | 0.00 | 107 | 107 | 12 |
| 9 | 30 | 60 | 100 | 01EQ1 | ZZZZZ | 00009 | 0.175 | 0.00 | 171 | 171 | 15 |
| 10 | 36 | 60 | 100 | 01EQ1 | ZZZZZ | 00010 | 0.210 | 0.00 | 171 | 171 | 13 |
| 11 | 22 | 60 | 100 | 01EQ1 | ZZZZZ | 00011 | 0.210 | 0.00 | 105 | 105 | 13 |
| 12 | 29 | 60 | 100 | 01EQ1 | ZZZZZ | 00012 | 0.171 | 0.00 | 169 | 169 | 16 |
| 13 | 30 | 60 | 100 | 01EQ1 | ZZZZZ | 00013 | 0.210 | 0.00 | 143 | 143 | 13 |
| 14 | 24 | 60 | 100 | 01EQ1 | ZZZZZ | 00014 | 0.251 | 0.00 | 96 | 96 | 11 |
| 15 | 34 | 60 | 100 | 01EQ1 | ZZZZZ | 00015 | 0.241 | 0.00 | 141 | 141 | 11 |
| 16 | 29 | 60 | 100 | 01EQ1 | ZZZZZ | 00016 | 0.323 | 0.00 | 90 | 90 | 8 |
| 17 | 33 | 60 | 100 | 01EQ1 | ZZZZZ | 00017 | 0.212 | 0.00 | 155 | 155 | 13 |
| 18 | 27 | 60 | 100 | 01EQ1 | ZZZZZ | 00018 | 0.272 | 0.00 | 99 | 99 | 10 |
| 19 | 38 | 60 | 100 | 01EQ1 | ZZZZZ | 00019 | 0.264 | 0.00 | 144 | 144 | 10 |
| 20 | 30 | 60 | 100 | 01EQ1 | ZZZZZ | 00020 | 0.244 | 0.00 | 123 | 123 | 11 |
| 21 | 34 | 60 | 100 | 01EQ1 | ZZZZZ | 00021 | 0.239 | 0.00 | 142 | 142 | 11 |
| 22 | 27 | 60 | 100 | 01EQ1 | ZZZZZ | 00022 | 0.329 | 0.00 | 82 | 82 | 8 |
| 23 | 38 | 60 | 100 | 01EQ1 | ZZZZZ | 00023 | 0.241 | 0.00 | 158 | 158 | 11 |
| 24 | 35 | 60 | 100 | 01EQ1 | ZZZZZ | 00024 | 0.300 | 0.00 | 117 | 117 | 9 |
| 25 | 23 | 60 | 100 | 01EQ1 | ZZZZZ | 00025 | 0.347 | 0.00 | 66 | 66 | 8 |
| 26 | 31 | 60 | 100 | 01EQ1 | ZZZZZ | 00026 | 0.300 | 0.00 | 103 | 103 | 9 |
| 27 | 22 | 60 | 100 | 01EQ1 | ZZZZZ | 00027 | 0.286 | 0.00 | 77 | 77 | 9 |
| 28 | 21 | 60 | 100 | 01EQ1 | ZZZZZ | 00028 | 0.251 | 0.00 | 84 | 84 | 11 |
| 29 | 38 | 60 | 100 | 01EQ1 | ZZZZZ | 00029 | 0.300 | 0.00 | 127 | 127 | 9 |
| 30 | 25 | 60 | 100 | 01EQ1 | ZZZZZ | 00030 | 0.186 | 0.00 | 135 | 135 | 15 |
| | | | | | | | | | # Measurements | 30 | |
| | | | | | | | | | Average | 142 | |
| | | | | | | | | | Maximum | 260 | |
| | | | | | | | | | STD DEV | 51 | |
| | | | | | | | | | 95% CL on Mean | 163 | |

USER: 1 ID:SMEARS PRESET TIME: 1.00 THU 12 JUL 2001 11:26
SAMPLE REPEAT: 1 CYCLE REPEAT: 1 SCR:N RS232:N
H#: 1 AQC:N QCF:N RCM:N 2 PHASE MONITOR:N
CHANNEL 1-LL: 0 UL: 400 2SIGMA: 2.00 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0
CHANNEL 2-LL: 0 UL: 670 2SIGMA: 2.00 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0
CHANNEL 3-LL: 0 UL:1000 2SIGMA: 2.00 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0

SINGLE LABEL DPM, SET UP ON SUN 24 JUN 2001 16:19
UNKNOWN ID:SMEARS UNKNOWN REPLICATES: 1
UNKNOWN NORM FACTOR:Q 1.00000 UNKNOWN UNITS:DPM
QUENCH MODE:H CALCULATE COEFF:N HALF LIFE(DAYS):N
QUENCH COEFF A: 4.328559 B:-0.0051270 C:-0.0000122 D:-0.0000000212
STANDARD ID:
QUENCH LIMITS LOW:90.00 HIGH:390.0

| SAM | POS | CH | CPM | 2SIG% | TIME | EL TIME | AVG H# | | ERR |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 8- 1 | 1 | 29.00 | 37.14 | 1.00 | 1.54 | 213.0 | | |
| | | 2 | 69.00 | 24.08 | | | | | |
| | | 3 | 88.00 | 21.32 | | | | | |
| | | | | | %EFF:11.92 | ISO1 DPM | | :243.3085 | |
| 2 | 8- 2 | 1 | 44.00 | 30.15 | 1.00 | 3.02 | 181.0 | | |
| | | 2 | 74.00 | 23.25 | | | | | |
| | | 3 | 92.00 | 20.85 | | | | | |
| | | | | | %EFF:17.73 | ISO1 DPM | | :248.1861 | |
| 3 | 8- 3 | 1 | 33.00 | 34.82 | 1.00 | 4.51 | 200.0 | | |
| | | 2 | 55.00 | 26.97 | | | | | |
| | | 3 | 68.00 | 24.25 | | | | | |
| | | | | | %EFF:14.09 | ISO1 DPM | | :234.1857 | |
| 4 | 8- 4 | 1 | 35.00 | 33.81 | 1.00 | 5.99 | 164.0 | | |
| | | 2 | 79.00 | 22.50 | | | | | |
| | | 3 | 101.00 | 19.90 | | | | | |
| | | | | | %EFF:21.46 | ISO1 DPM | | :163.1108 | |
| 5 | 8- 5 | 1 | 31.00 | 35.92 | 1.00 | 7.48 | 175.0 | | |
| | | 2 | 72.00 | 23.57 | | | | | |
| | | 3 | 94.00 | 20.63 | | | | | |
| | | | | | %EFF:18.99 | ISO1 DPM | | :163.2153 | |
| 6 | 8- 6 | 1 | 38.00 | 32.44 | 1.00 | 8.96 | 197.0 | | |
| | | 2 | 79.00 | 22.50 | | | | | |
| | | 3 | 95.00 | 20.52 | | | | | |
| | | | | | %EFF:14.63 | ISO1 DPM | | :259.7639 | |
| 7 | 8- 7 | 1 | 31.00 | 35.92 | 1.00 | 10.44 | 163.0 | | |
| | | 2 | 71.00 | 23.74 | | | | | |
| | | 3 | 106.00 | 19.43 | | | | | |
| | | | | | %EFF:21.69 | ISO1 DPM | | :142.9148 | |
| 8 | 8- 8 | 1 | 25.00 | 40.00 | 1.00 | 11.92 | 156.0 | | |
| | | 2 | 67.00 | 24.43 | | | | | |
| | | 3 | 107.00 | 19.33 | | | | | |
| | | | | | %EFF:23.37 | ISO1 DPM | | :106.9839 | |
| 9 | 8- 9 | 1 | 30.00 | 36.51 | 1.00 | 13.40 | 182.0 | | |
| | | 2 | 67.00 | 24.43 | | | | | |
| | | 3 | 83.00 | 21.95 | | | | | |
| | | | | | %EFF:17.52 | ISO1 DPM | | :171.2016 | |

Performed By: [signature] Date: 7/12/01

Reviewed By: [signature] Date: 7/12/01

| SMM | POS | CH | CPM | 2SIG% | TIME | EL TIME | AVG H# | ERR |
|---|---|---|---|---|---|---|---|---|
| 10 | 8-10 | 1 | 36.00 | 33.33 | 1.00 | 14.88 | 166.0 | |
| | | 2 | 65.00 | 24.81 | | | | |
| | | 3 | 82.00 | 22.09 | | | | |
| | | | | | %EFF:21.00 | ISO1 DPM | :171.4630 | |
| 11 | 8-11 | 1 | 22.00 | 42.64 | 1.00 | 16.37 | 166.0 | |
| | | 2 | 47.00 | 29.17 | | | | |
| | | 3 | 73.00 | 23.41 | | | | |
| | | | | | %EFF:21.00 | ISO1 DPM | :104.7829 | |
| 12 | 8-12 | 1 | 29.00 | 37.14 | 1.00 | 17.85 | 184.0 | |
| | | 2 | 64.00 | 25.00 | | | | |
| | | 3 | 79.00 | 22.50 | | | | |
| | | | | | %EFF:17.12 | ISO1 DPM | :169.4213 | |
| 13 | 8- 1 | 1 | 30.00 | 36.51 | 1.00 | 19.40 | 166.0 | |
| | | 2 | 60.00 | 25.82 | | | | |
| | | 3 | 86.00 | 21.57 | | | | |
| | | | | | %EFF:21.00 | ISO1 DPM | :142.8858 | |
| 14 | 8- 2 | 1 | 24.00 | 40.82 | 1.00 | 20.88 | 149.0 | |
| | | 2 | 55.00 | 26.97 | | | | |
| | | 3 | 79.00 | 22.50 | | | | |
| | | | | | %EFF:25.12 | ISO1 DPM | :95.54195 | |
| 15 | 8- 3 | 1 | 34.00 | 34.30 | 1.00 | 22.37 | 153.0 | |
| | | 2 | 66.00 | 24.62 | | | | |
| | | 3 | 93.00 | 20.74 | | | | |
| | | | | | %EFF:24.11 | ISO1 DPM | :141.0226 | |
| | 8- 4 | 1 | 29.00 | 37.14 | 1.00 | 23.85 | 123.0 | |
| | | 2 | 58.00 | 26.26 | | | | |
| | | 3 | 91.00 | 20.97 | | | | |
| | | | | | %EFF:32.26 | ISO1 DPM | :89.88713 | |
| 17 | 8- 5 | 1 | 33.00 | 34.82 | 1.00 | 25.33 | 165.0 | |
| | | 2 | 74.00 | 23.25 | | | | |
| | | 3 | 98.00 | 20.20 | | | | |
| | | | | | %EFF:21.23 | ISO1 DPM | :155.4698 | |
| 18 | 8- 6 | 1 | 27.00 | 38.49 | 1.00 | 26.82 | 141.0 | |
| | | 2 | 63.00 | 25.20 | | | | |
| | | 3 | 102.00 | 19.80 | | | | |
| | | | | | %EFF:27.21 | ISO1 DPM | :99.21970 | |
| 19 | 8- 7 | 1 | 38.00 | 32.44 | 1.00 | 28.29 | 144.0 | |
| | | 2 | 66.00 | 24.62 | | | | |
| | | 3 | 83.00 | 21.95 | | | | |
| | | | | | %EFF:26.42 | ISO1 DPM | :143.8489 | |
| 20 | 8- 8 | 1 | 30.00 | 36.51 | 1.00 | 29.77 | 152.0 | |
| | | 2 | 84.00 | 21.82 | | | | |
| | | 3 | 113.00 | 18.81 | | | | |
| | | | | | %EFF:24.36 | ISO1 DPM | :123.1538 | |
| 21 | 8- 9 | 1 | 34.00 | 34.30 | 1.00 | 31.26 | 154.0 | |
| | | 2 | 64.00 | 25.00 | | | | |
| | | 3 | 93.00 | 20.74 | | | | |
| | | | | | %EFF:23.86 | ISO1 DPM | :142.4934 | |
| 22 | 8-10 | 1 | 27.00 | 38.49 | 1.00 | 32.74 | 121.0 | |
| | | 2 | 58.00 | 26.26 | | | | |
| | | 3 | 85.00 | 21.69 | | | | |
| | | | | | %EFF:32.85 | ISO1 DPM | :82.18631 | |

Performed By: [signature] Date: 7/12/01

Reviewed By: [signature] Date: 7/12/01

| SMM | POS | CH | CPM | 2SIG% | TIME | EL TIME | AVG H# | ERR |
|---|---|---|---|---|---|---|---|---|
| 23 | 8-11 | 1 | 38.00 | 32.44 | 1.00 | 34.22 | 153.0 | |
| | | 2 | 69.00 | 24.08 | | | | |
| | | 3 | 98.00 | 20.20 | | | | |
| | | | | | %EFF: | 24.11 | ISO1 DPM | :157.6134 |
| 24 | 8-12 | 1 | 35.00 | 33.81 | 1.00 | 35.72 | 131.0 | |
| | | 2 | 83.00 | 21.95 | | | | |
| | | 3 | 120.00 | 18.26 | | | | |
| | | | | | %EFF: | 29.96 | ISO1 DPM | :116.8186 |
| 25 | 7- 1 | 1 | 23.00 | 41.70 | 1.00 | 37.26 | 115.0 | |
| | | 2 | 58.00 | 26.26 | | | | |
| | | 3 | 84.00 | 21.82 | | | | |
| | | | | | %EFF: | 34.65 | ISO1 DPM | :66.37349 |
| 26 | 7- 2 | 1 | 31.00 | 35.92 | 1.00 | 38.74 | 131.0 | |
| | | 2 | 58.00 | 26.26 | | | | |
| | | 3 | 78.00 | 22.65 | | | | |
| | | | | | %EFF: | 29.96 | ISO1 DPM | :103.4679 |
| 27 | 7- 3 | 1 | 22.00 | 42.64 | 1.00 | 40.22 | 136.0 | |
| | | 2 | 66.00 | 24.62 | | | | |
| | | 3 | 87.00 | 21.44 | | | | |
| | | | | | %EFF: | 28.57 | ISO1 DPM | :77.00732 |
| 28 | 7- 4 | 1 | 21.00 | 43.64 | 1.00 | 41.71 | 149.0 | |
| | | 2 | 58.00 | 26.26 | | | | |
| | | 3 | 85.00 | 21.69 | | | | |
| | | | | | %EFF: | 25.12 | ISO1 DPM | :83.59921 |
| | 7- 5 | 1 | 38.00 | 32.44 | 1.00 | 43.19 | 131.0 | |
| | | 2 | 75.00 | 23.09 | | | | |
| | | 3 | 110.00 | 19.07 | | | | |
| | | | | | %EFF: | 29.96 | ISO1 DPM | :126.8316 |
| 30 | 7- 6 | 1 | 25.00 | 40.00 | 1.00 | 44.68 | 177.0 | |
| | | 2 | 63.00 | 25.20 | | | | |
| | | 3 | 81.00 | 22.22 | | | | |
| | | | | | %EFF: | 18.57 | ISO1 DPM | :134.6583 |

Performed By: [signature] Date: 7/12/01

Reviewed By: [signature] Date: 7/12/01

# Georgia Institute of Technology
# Research Reactor

# Final Survey Package 11

# Reactor Building Basement Drain Lines

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# Section 1

# Survey Package 11 Worksheet for the Basement Drain Lines

Duratek Inc.
Survey Package Worksheet for Basement Drain Lines
Georgia Institute of Technology Research Reactor

| | |
|---|---|
| Package Identification No.: **11** | Prepared by: Paul Jones |
| Area: **01** | Date prepared: 05/18/2001 |
| Area Classification: Suspect Affected | |

## Area Description

Reactor Building Basement Drain Lines. Drains D01 thru D09 traveled to the sump on the basement floor. Drain D10 traveled between the D2O Pit and the vessel tunnel shaft.

## Historical Information

Portions of these lines up to 20' upstream of the sump were contaminated and required decontamination with industrial strength drain cleaners and high water pressure water systems. The complete lines were flushed twice to assure an absolute minimum amount of loose debris remaining for final survey.

## General Survey Instructions

Drain Lines D01-D10;

1) Perform a 100% beta scan of all accessible areas of piping (Denote any areas on map which were inaccessible)
2) Obtain a minimum of 3 direct beta measurements for each pipe.
3) Obtain a minimum of 2 smears on inside of each pipe for gross alpha/beta analysis.
4) Obtain a minimum of 2 smears on inside of each pipe for liquid scintillation analysis.

Use only the Package ID and L7 and L8 codes when labeling smears for counting.

Use all location codes provided below when taken fixed beta readings.

| Special Instructions |
|---|
| Source check meters to Tc-99 for beta measurements.<br><br>Use pipe detector model numbers 43-94, 43-98, and PSL-3R for surveys inside of pipes.<br><br>Gross α/β and H-3 smears should be taken as follows:<br>one smear at the entrance to each drain and one smear at ~2 ft inside of each drain. |

Survey performance (Initial and date as each survey is complete)

| Location Code | | | | | Beta Scan | Direct Beta | 1 meter Gamma | Smear Gross α/β | H-3 Smear |
|---|---|---|---|---|---|---|---|---|---|
| L1 | L2 | L6 | L7 | L8 | | | | | |
| Georgia Tech Research Reactor ~~Helium and Reactor Cooling Water Lines~~ Basement Drain Lines — A 8/7/01 | | | | | | | | | |
| A0211 | 01D01 | B9999 | ZZZZZ | 1, 2, or 3 | DB 9-5-01 | (3) PA 8/27/01 | N/A | (2) 8/30/01 | (2) 8/30/01 |
| A0211 | 01D02 | B9999 | ZZZZZ | 1, 2, or 3 | DB 9-5-01 | (3) PA 8/27/01 | N/A | (2) 8/30/01 | (2) 8/30/01 |
| A0211 | 01D03 | B9999 | ZZZZZ | 1, 2, or 3 | DB 9-5-01 | (3) DB 9-5-01 | N/A | (2) 8/30/01 | (2) 8/30/01 |
| A0211 | 01D04 | B9999 | ZZZZZ | 1, 2, or 3 | DB 9-5-01 | (3) DB 9-5-01 | N/A | (2) 8/30/01 | (2) 8/30/01 |
| A0211 | 01D05 | B9999 | ZZZZZ | 1, 2, or 3 | DB 9-5-01 | (3) PA 8/27/01 | N/A | (2) 8/30/01 | (2) 8/30/01 |
| A0211 | 01D06 | B9999 | ZZZZZ | 1, 2, or 3 | DB 9-5-01 | (3) PA 8/27/01 | N/A | (2) 8/30/01 | (2) 8/30/01 |
| A0211 | 01D07 | B9999 | ZZZZZ | 1, 2, or 3 | DB 9-5-01 | (3) PA 8/27/01 | N/A | (2) 8/30/01 | (2) 8/30/01 |
| A0211 | 01D08 | B9999 | ZZZZZ | 1, 2, or 3 | DB 9-5-01 | (3) PA 8/27/01 | N/A | (2) 8/30/01 | (2) 8/30/01 |

| Survey performance (Initial and date as each survey is complete) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Location Code | | | | | Beta Scan | Direct Beta | 1 meter Gamma | Smear Gross α/β | H-3 Smear |
| L1 | L2 | L6 | L7 | L8 | | | | | |
| Georgia Tech Research Reactor Helium and Reactor Cooling Water Lines | | | | | | | | | |
| A0211 | 01D09 | B9999 | ZZZZZ | 1, 2, or 3 | DS 9-5-01 | (3) DS 9-5-01 | N/A | (2) 8/30/01 | (2) 8/30/01 |
| A0211 | 01D10 | B9999 | ZZZZZ | 1, 2, or 3 | DS 9-5-01 | (3) DS 9-5-01 | N/A | (2) 8/30/01 | (2) 8/30/01 |
| | | N | A | | | | | | |

| Package Review | |
|---|---|
| Date Package Completed | 5/20/02 |
| Package Reviewed by and Date | Pat A Jones 5/20/02 |

| Survey Comments |
|---|
| |
| |
| |
| |
| |
| |
| |
| |
| |

Because the drain lines between drains D03/D04 and the sump were easily accessible and known to be contaminated near the sump, these pipes were surveyed every foot.

Drains D01, D02, and D05-D09 were surveyed every foot until passing the 1st elbow (see attached maps).

D10 was surveyed every foot since this pipe was decontaminated during the decommissioning.

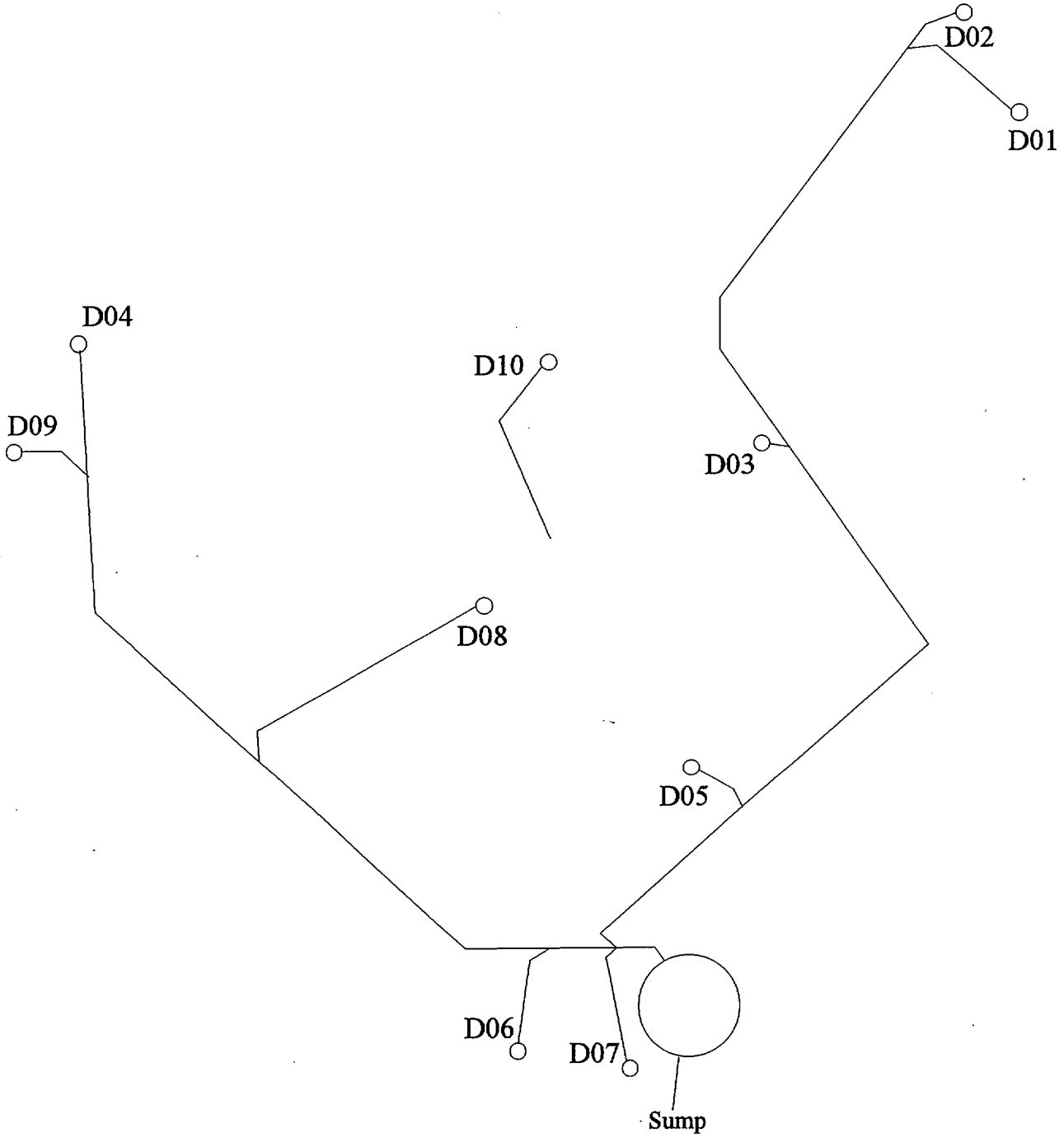
P. A. Jones 8/27/01

# Section 2

# Package 11
# Basement Drain Line Drawings

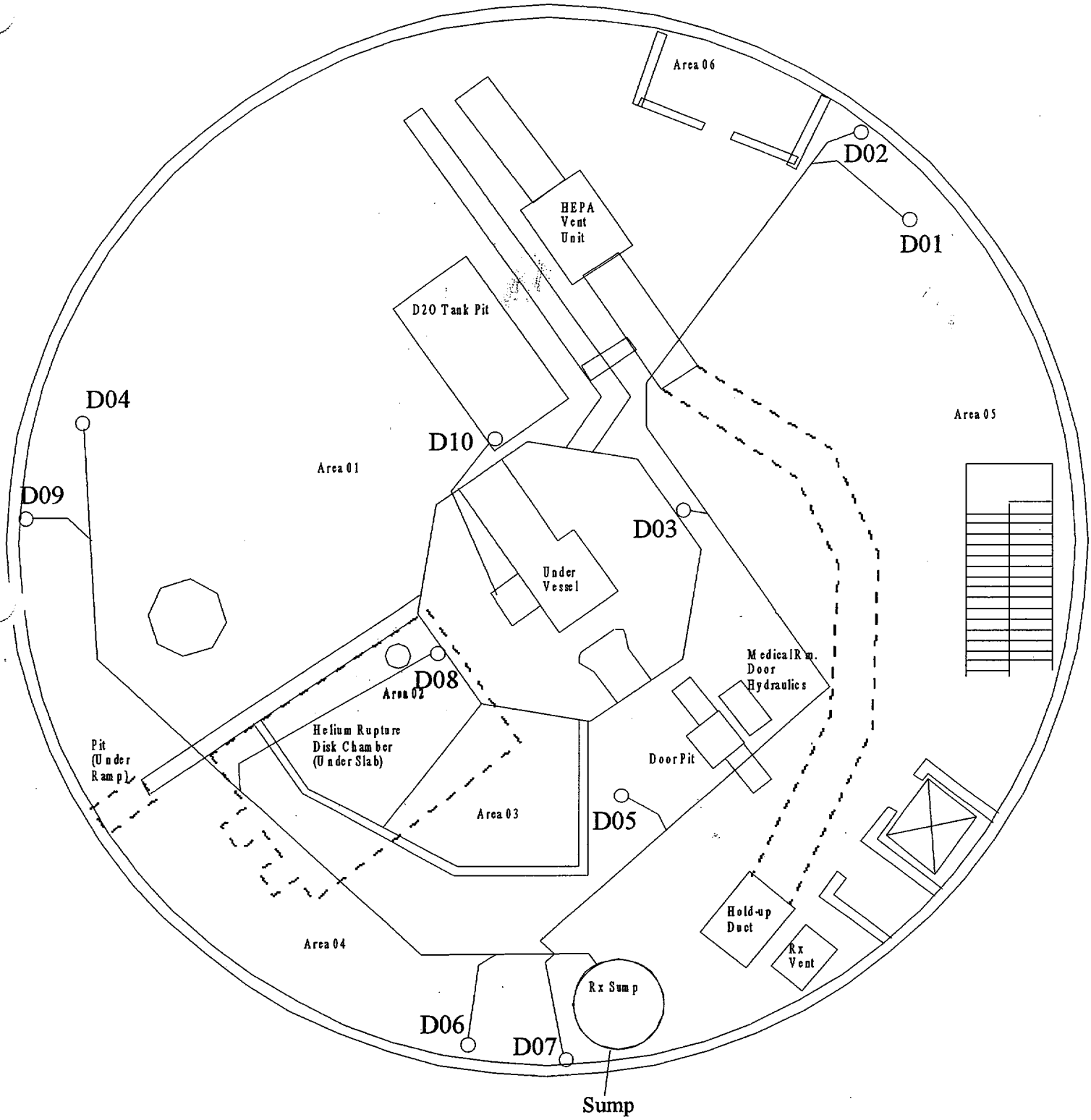
# Georgia Tech Research Reactor Basement Drain Lines

## Final Survey Package 11



# Georgia Tech Research Reactor Basement Drain Lines

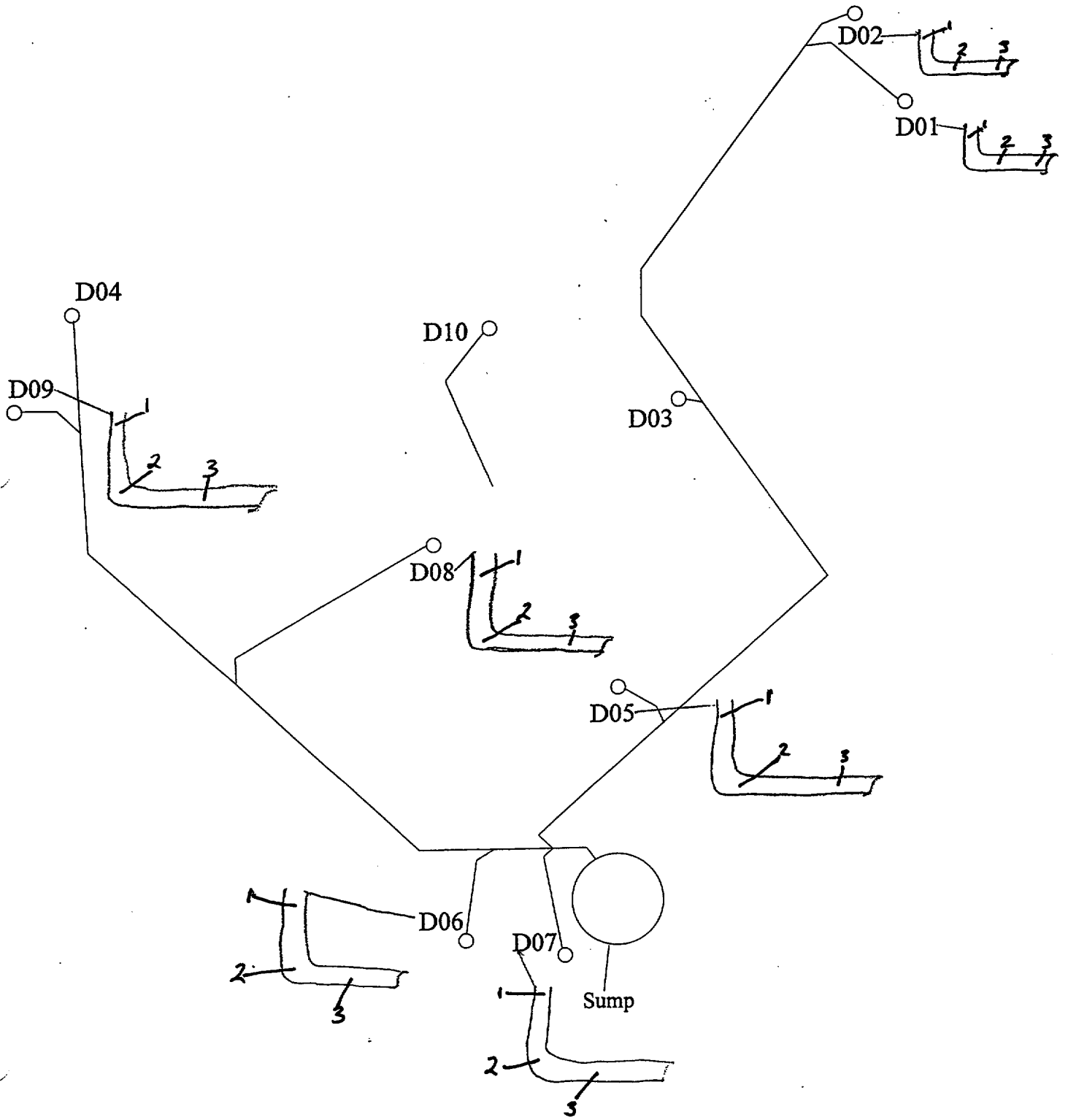
## Final Survey Package 11



# Georgia Tech Research Reactor Basement Drain Lines

## Final Survey Package 11

Location of readings in drains D01, D02, & D05-D09




7A

# Section 3

# Package 11
# Direct Beta Survey Report for the Suspect Affected Basement Drain Lines (including download reports)

Direct

Package A0211 ~~Fixed~~ Beta Survey Report (Suspect Affected Basement Drain Lines)

3/13/03 [illegible]

| Desc. | File | Sample Number | Gross Counts | Count Time (sec) | Material Type | Detector Area ($cm^2$) | Surface | Count Type | Row | Location | Efficiency (dpm/cpm) | Background (cpm) | Activity ($dpm/100cm^2$) | Natural Background ($dpm/100cm^2$) | Net Activity ($dpm/100cm^2$) | MDA ($dpm/100cm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01D01 | 221 | 3 | 56 | 60 | B9999 | 100 | 01D01 | FLDCT | ZZZZZ | 00001 | 0.055 | 62 | -109 | 0 | -109 | 543 |
| | 221 | 4 | 70 | 60 | B9999 | 100 | 01D01 | FLDCT | ZZZZZ | 00002 | 0.055 | 62 | 145 | 0 | 145 | 543 |
| | 221 | 5 | 69 | 60 | B9999 | 100 | 01D01 | FLDCT | ZZZZZ | 00003 | 0.055 | 62 | 127 | 0 | 127 | 543 |
| 01D02 | 221 | 6 | 68 | 60 | B9999 | 100 | 01D02 | FLDCT | ZZZZZ | 00001 | 0.055 | 62 | 109 | 0 | 109 | 543 |
| | 221 | 7 | 64 | 60 | B9999 | 100 | 01D02 | FLDCT | ZZZZZ | 00002 | 0.055 | 62 | 36 | 0 | 36 | 543 |
| | 221 | 8 | 70 | 60 | B9999 | 100 | 01D02 | FLDCT | ZZZZZ | 00003 | 0.055 | 62 | 145 | 0 | 145 | 543 |
| 01D03 | 148 | 7 | 176 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00001 | 0.052 | 77 | 470 | 0 | 470 | 1014 |
| | 148 | 8 | 138 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00002 | 0.052 | 77 | -342 | 0 | -342 | 1014 |
| | 148 | 9 | 201 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00003 | 0.052 | 77 | 1004 | 0 | 1004 | 1014 |
| | 148 | 10 | 221 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00004 | 0.052 | 77 | 1432 | 0 | 1432 | 1014 |
| | 148 | 11 | 201 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00005 | 0.052 | 77 | 1004 | 0 | 1004 | 1014 |
| | 148 | 12 | 184 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00006 | 0.052 | 77 | 641 | 0 | 641 | 1014 |
| | 148 | 13 | 172 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00007 | 0.052 | 77 | 385 | 0 | 385 | 1014 |
| | 148 | 14 | 148 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00008 | 0.052 | 77 | -128 | 0 | -128 | 1014 |
| | 148 | 15 | 138 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00009 | 0.052 | 77 | -342 | 0 | -342 | 1014 |
| | 148 | 16 | 183 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00010 | 0.052 | 77 | 620 | 0 | 620 | 1014 |
| | 148 | 17 | 180 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00011 | 0.052 | 77 | 556 | 0 | 556 | 1014 |
| | 148 | 18 | 181 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00012 | 0.052 | 77 | 577 | 0 | 577 | 1014 |
| | 148 | 19 | 174 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00013 | 0.052 | 77 | 427 | 0 | 427 | 1014 |
| | 148 | 20 | 158 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00014 | 0.052 | 77 | 85 | 0 | 85 | 1014 |
| | 148 | 21 | 174 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00015 | 0.052 | 77 | 427 | 0 | 427 | 1014 |
| | 148 | 22 | 158 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00016 | 0.052 | 77 | 85 | 0 | 85 | 1014 |
| | 148 | 23 | 169 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00017 | 0.052 | 77 | 321 | 0 | 321 | 1014 |
| | 148 | 24 | 181 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00018 | 0.052 | 77 | 577 | 0 | 577 | 1014 |
| | 148 | 25 | 143 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00019 | 0.052 | 77 | -235 | 0 | -235 | 1014 |
| | 148 | 26 | 154 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00020 | 0.052 | 77 | 0 | 0 | 0 | 1014 |
| | 148 | 27 | 124 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00021 | 0.052 | 77 | -641 | 0 | -641 | 1014 |
| | 148 | 28 | 139 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00022 | 0.052 | 77 | -321 | 0 | -321 | 1014 |
| | 148 | 29 | 148 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00023 | 0.052 | 77 | -128 | 0 | -128 | 1014 |
| | 148 | 30 | 146 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00024 | 0.052 | 77 | -171 | 0 | -171 | 1014 |
| | 148 | 31 | 182 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00025 | 0.052 | 77 | 598 | 0 | 598 | 1014 |
| | 148 | 32 | 156 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00026 | 0.052 | 77 | 43 | 0 | 43 | 1014 |
| | 148 | 33 | 180 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00027 | 0.052 | 77 | 556 | 0 | 556 | 1014 |
| | 148 | 34 | 151 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00028 | 0.052 | 77 | -64 | 0 | -64 | 1014 |
| | 148 | 35 | 158 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00029 | 0.052 | 77 | 85 | 0 | 85 | 1014 |
| | 148 | 36 | 160 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00030 | 0.052 | 77 | 128 | 0 | 128 | 1014 |
| | 148 | 37 | 164 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00031 | 0.052 | 77 | 214 | 0 | 214 | 1014 |
| | 148 | 38 | 137 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00032 | 0.052 | 77 | -363 | 0 | -363 | 1014 |
| | 148 | 39 | 138 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00033 | 0.052 | 77 | -342 | 0 | -342 | 1014 |
| | 148 | 40 | 133 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00034 | 0.052 | 77 | -449 | 0 | -449 | 1014 |
| | 148 | 41 | 132 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00035 | 0.052 | 77 | -470 | 0 | -470 | 1014 |
| | 148 | 42 | 148 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00036 | 0.052 | 77 | -128 | 0 | -128 | 1014 |
| | 148 | 43 | 125 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00037 | 0.052 | 77 | -620 | 0 | -620 | 1014 |
| | 148 | 44 | 132 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00038 | 0.052 | 77 | -470 | 0 | -470 | 1014 |
| | 148 | 45 | 145 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00039 | 0.052 | 77 | -192 | 0 | -192 | 1014 |
| | 148 | 46 | 163 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00040 | 0.052 | 77 | 192 | 0 | 192 | 1014 |
| | 148 | 47 | 159 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00041 | 0.052 | 77 | 107 | 0 | 107 | 1014 |
| | 148 | 48 | 151 | 120 | B9999 | 45 | 01D03 | FLDCT | ZZZZZ | 00042 | 0.052 | 77 | -64 | 0 | -64 | 1014 |
| 01D04 | 132 | 3 | 210 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00000 | 0.049 | 78 | -363 | 0 | -363 | 908 |
| | 132 | 4 | 241 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00001 | 0.049 | 78 | 106 | 0 | 106 | 908 |
| | 132 | 6 | 284 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00001 | 0.049 | 78 | 756 | 0 | 756 | 908 |
| | 132 | 5 | 347 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00002 | 0.049 | 78 | 1708 | 0 | 1708 | 908 |
| | 132 | 7 | 231 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00002 | 0.049 | 78 | -45 | 0 | -45 | 908 |
| | 132 | 8 | 264 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00003 | 0.049 | 78 | 454 | 0 | 454 | 908 |



014

Direct

Package A0211 ~~Fixed~~ Beta Survey Report (Suspect Affected Basement Drain Lines)

3/13/02

| Desc. | File | Sample Number | Gross Counts | Count Time (sec) | Material Type | Detector Area ($cm^2$) | Surface | Count Type | Row | Location | Efficiency (dpm/cpm) | Background (cpm) | Activity (dpm/100$cm^2$) | Natural Background (dpm/100$cm^2$) | Net Activity (dpm/100$cm^2$) | MDA (dpm/100$cm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 132 | 9 | 232 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00004 | 0.049 | 78 | -30 | 0 | -30 | 908 |
| | 132 | 10 | 244 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00005 | 0.049 | 78 | 151 | 0 | 151 | 908 |
| | 132 | 11 | 231 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00006 | 0.049 | 78 | -45 | 0 | -45 | 908 |
| | 132 | 12 | 241 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00007 | 0.049 | 78 | 106 | 0 | 106 | 908 |
| | 132 | 13 | 231 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00008 | 0.049 | 78 | -45 | 0 | -45 | 908 |
| | 132 | 14 | 249 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00009 | 0.049 | 78 | 227 | 0 | 227 | 908 |
| | 132 | 15 | 224 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00010 | 0.049 | 78 | -151 | 0 | -151 | 908 |
| | 132 | 16 | 249 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00011 | 0.049 | 78 | 227 | 0 | 227 | 908 |
| | 132 | 17 | 235 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00012 | 0.049 | 78 | 15 | 0 | 15 | 908 |
| | 132 | 18 | 237 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00013 | 0.049 | 78 | 45 | 0 | 45 | 908 |
| | 132 | 19 | 224 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00014 | 0.049 | 78 | -151 | 0 | -151 | 908 |
| | 132 | 20 | 241 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00015 | 0.049 | 78 | 106 | 0 | 106 | 908 |
| | 132 | 21 | 221 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00016 | 0.049 | 78 | -197 | 0 | -197 | 908 |
| | 132 | 22 | 236 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00017 | 0.049 | 78 | 30 | 0 | 30 | 908 |
| | 132 | 23 | 226 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00018 | 0.049 | 78 | -121 | 0 | -121 | 908 |
| | 132 | 24 | 230 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00019 | 0.049 | 78 | -60 | 0 | -60 | 908 |
| | 132 | 25 | 243 | 180 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00020 | 0.049 | 78 | 136 | 0 | 136 | 908 |
| | 132 | 26 | 67 | 60 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00040 | 0.049 | 78 | -499 | 0 | -499 | 1505 |
| | 132 | 27 | 80 | 60 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00045 | 0.049 | 78 | 91 | 0 | 91 | 1505 |
| | 132 | 28 | 79 | 60 | B9999 | 45 | 01D04 | FLDCT | ZZZZZ | 00049 | 0.049 | 78 | 45 | 0 | 45 | 1505 |
| | 134 | 18 | 102 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00051 | 0.051 | 105 | -59 | 0 | -59 | 746 |
| | 134 | 17 | 106 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00053 | 0.051 | 105 | 20 | 0 | 20 | 746 |
| | 134 | 16 | 108 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00058 | 0.051 | 105 | 59 | 0 | 59 | 746 |
| | 134 | 15 | 130 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00059 | 0.051 | 105 | 490 | 0 | 490 | 746 |
| | 134 | 14 | 118 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00060 | 0.051 | 105 | 255 | 0 | 255 | 746 |
| | 134 | 13 | 105 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00061 | 0.051 | 105 | 0 | 0 | 0 | 746 |
| | 134 | 12 | 134 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00062 | 0.051 | 105 | 569 | 0 | 569 | 746 |
| | 134 | 11 | 102 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00063 | 0.051 | 105 | -59 | 0 | -59 | 746 |
| | 134 | 10 | 124 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00064 | 0.051 | 105 | 373 | 0 | 373 | 746 |
| | 134 | 9 | 116 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00065 | 0.051 | 105 | 216 | 0 | 216 | 746 |
| | 134 | 8 | 144 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00066 | 0.051 | 105 | 765 | 0 | 765 | 746 |
| | 134 | 7 | 122 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00067 | 0.051 | 105 | 333 | 0 | 333 | 746 |
| | 134 | 6 | 160 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00068 | 0.051 | 105 | 1078 | 0 | 1078 | 746 |
| | 134 | 5 | 170 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00069 | 0.051 | 105 | 1275 | 0 | 1275 | 746 |
| | 134 | 4 | 147 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00070 | 0.051 | 105 | 824 | 0 | 824 | 746 |
| | 134 | 3 | 144 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00071 | 0.051 | 105 | 765 | 0 | 765 | 746 |
| | 134 | 2 | 161 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00072 | 0.051 | 105 | 1098 | 0 | 1098 | 746 |
| | 134 | 1 | 125 | 60 | B9999 | 100 | 01D04 | FLDCT | ZZZZZ | 00073 | 0.051 | 105 | 392 | 0 | 392 | 746 |
| 01D05 | 221 | 9 | 70 | 60 | B9999 | 100 | 01D05 | FLDCT | ZZZZZ | 00001 | 0.055 | 62 | 145 | 0 | 145 | 543 |
| | 221 | 10 | 62 | 60 | B9999 | 100 | 01D05 | FLDCT | ZZZZZ | 00002 | 0.055 | 62 | 0 | 0 | 0 | 543 |
| | 221 | 11 | 63 | 60 | B9999 | 100 | 01D05 | FLDCT | ZZZZZ | 00003 | 0.055 | 62 | 18 | 0 | 18 | 543 |
| 01D06 | 221 | 15 | 72 | 60 | B9999 | 100 | 01D06 | FLDCT | ZZZZZ | 00001 | 0.055 | 62 | 182 | 0 | 182 | 543 |
| | 221 | 16 | 66 | 60 | B9999 | 100 | 01D06 | FLDCT | ZZZZZ | 00002 | 0.055 | 62 | 73 | 0 | 73 | 543 |
| | 221 | 17 | 72 | 60 | B9999 | 100 | 01D06 | FLDCT | ZZZZZ | 00003 | 0.055 | 62 | 182 | 0 | 182 | 543 |
| 01D07 | 221 | 12 | 72 | 60 | B9999 | 100 | 01D07 | FLDCT | ZZZZZ | 00001 | 0.055 | 62 | 182 | 0 | 182 | 543 |
| | 221 | 13 | 64 | 60 | B9999 | 100 | 01D07 | FLDCT | ZZZZZ | 00002 | 0.055 | 62 | 36 | 0 | 36 | 543 |
| | 221 | 14 | 96 | 60 | B9999 | 100 | 01D07 | FLDCT | ZZZZZ | 00003 | 0.055 | 62 | 618 | 0 | 618 | 543 |
| 01D08 | 221 | 18 | 65 | 60 | B9999 | 100 | 01D08 | FLDCT | ZZZZZ | 00001 | 0.055 | 62 | 55 | 0 | 55 | 543 |
| | 221 | 19 | 69 | 60 | B9999 | 100 | 01D08 | FLDCT | ZZZZZ | 00002 | 0.055 | 62 | 127 | 0 | 127 | 543 |
| | 221 | 20 | 83 | 60 | B9999 | 100 | 01D08 | FLDCT | ZZZZZ | 00003 | 0.055 | 62 | 382 | 0 | 382 | 543 |
| 01D09 | 222 | 3 | 150 | 60 | B9999 | 100 | 01D09 | FLDCT | ZZZZZ | 00001 | 0.03 | 141 | 300 | 0 | 300 | 1456 |
| | 222 | 4 | 156 | 60 | B9999 | 100 | 01D09 | FLDCT | ZZZZZ | 00002 | 0.03 | 141 | 500 | 0 | 500 | 1456 |
| | 222 | 5 | 136 | 60 | B9999 | 100 | 01D09 | FLDCT | ZZZZZ | 00003 | 0.03 | 141 | -167 | 0 | -167 | 1456 |
| 01D10 | 107 | 3 | 238 | 120 | B9999 | 90 | 01D10 | FLDCT | ZZZZZ | 00000 | 0.048 | 116 | 69 | 0 | 69 | 667 |



015

Direct

Package A0211 ~~Fixed~~ Beta Survey Report (Suspect Affected Basement Drain Lines)

3/13/02

| Desc. | File | Sample Number | Gross Counts | Count Time (sec) | Material Type | Detector Area ($cm^2$) | Surface | Count Type | Row | Location | Efficiency (dpm/cpm) | Background (cpm) | Activity ($dpm/100cm^2$) | Natural Background ($dpm/100cm^2$) | Net Activity ($dpm/100cm^2$) | MDA ($dpm/100cm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 107 | 4 | 344 | 120 | B9999 | 90 | 01D10 | FLDCT | ZZZZZ | 00001 | 0.048 | 116 | 1296 | 0 | 1296 | 667 |
| | 107 | 5 | 378 | 120 | B9999 | 90 | 01D10 | FLDCT | ZZZZZ | 00002 | 0.048 | 116 | 1690 | 0 | 1690 | 667 |
| | 107 | 6 | 342 | 120 | B9999 | 90 | 01D10 | FLDCT | ZZZZZ | 00003 | 0.048 | 116 | 1273 | 0 | 1273 | 667 |
| | 107 | 7 | 356 | 120 | B9999 | 90 | 01D10 | FLDCT | ZZZZZ | 00004 | 0.048 | 116 | 1435 | 0 | 1435 | 667 |
| | 107 | 8 | 343 | 120 | B9999 | 90 | 01D10 | FLDCT | ZZZZZ | 00005 | 0.048 | 116 | 1285 | 0 | 1285 | 667 |
| | 107 | 9 | 382 | 120 | B9999 | 90 | 01D10 | FLDCT | ZZZZZ | 00006 | 0.048 | 116 | 1736 | 0 | 1736 | 667 |
| | 107 | 10 | 349 | 120 | B9999 | 90 | 01D10 | FLDCT | ZZZZZ | 00007 | 0.048 | 116 | 1354 | 0 | 1354 | 667 |
| | 107 | 11 | 315 | 120 | B9999 | 90 | 01D10 | FLDCT | ZZZZZ | 00008 | 0.048 | 116 | 961 | 0 | 961 | 667 |
| | 107 | 12 | 284 | 120 | B9999 | 90 | 01D10 | FLDCT | ZZZZZ | 00009 | 0.048 | 116 | 602 | 0 | 602 | 667 |
| | 107 | 13 | 270 | 120 | B9999 | 90 | 01D10 | FLDCT | ZZZZZ | 00010 | 0.048 | 116 | 440 | 0 | 440 | 667 |
| | | | | | | | | | | | | | | # Measurements | 118 | |
| | | | | | | | | | | | | | | Average | 264 | |
| | | | | | | | | | | | | | | Maximum | 1736 | |
| | | | | | | | | | | | | | | STD DEV | 505 | |
| | | | | | | | | | | | | | | 95% CL on Mean | 355 | |



016

## ATTACHMENT 6.14
## SURVEY DOWNLOAD DATA SHEET

Download Print
Technician: Name: D. Schumacher Signature: [signature] Station: 2 File: 132
Serial No. Verification: Model 2350: ☑ Detector: ☑ Problems: ☐ (See Comments)

Survey Technician(s):
Print Name: D. Schumacher User ID DPS 4133 Signature: [signature] Date: 6-11-01

Print Name: _____ User ID _____ Signature: _____ Date: _____

Survey Unit Description: A0200 Rx Bldg. Sump Drain Line
*(Example: Survey Package + description i.e. D16, Building 43, Area 09, Room 100, Floor - Grid Locations A1 through A7)*

Instrument Model and Serial No.: Model 2350 ☐ Model 2350-1 ☑: 98642

Instrument and Detector Calibration Due Dates: Survey Meter: 6-14-01 Detector: 11-24-01

Type Of Survey: ☑ Term Survey ☐ Characterization ☐ Information Only
☐ Other (explain):

| Type of Measurement | Detector Serial Number | Detector Model Number | Detector Efficiency | Source Mean BKG Value | Pre & Post Use Info | |
|---|---|---|---|---|---|---|
| | | | | | Pre File No. | Post File No. |
| ☐ Beta β | | 43-106B | | | | |
| ☐ Beta β | | 43-68B | | | | |
| ☐ Alpha α | | 43-68A | | | | |
| ☐ Gamma γ | | 44-2 | N/A | | | |
| ☑ Beta | 007A | PSL-3R | .049 | 1617 | 132 | 133 |

| Local Area Background Measurements | | | | | | | MEAN Value in cpm ! |
|---|---|---|---|---|---|---|---|
| 10 min β Beta | 1 777 | 2 | 3 | 4 | 5 | 6 | 78 |
| α Alpha | 1 | 2 | 3 | 4 | 5 | 6 | |

COMMENTS: _____

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

Direct Beta Survey Report, dpm/100 cm2

| | | | |
|---|---|---|---|
| File Number: 132 | Survey Description: A0200: RX BUILDING SUMP DRAIN LINE | | |
| Survey Reason: CHARACTERIZATION | User ID: DPS4133 | Technician name: Don Schumaker | |
| Instrument Model: 2350-1 | S/N: 98642 | Calibration Due: 10/18/01 | Group: 2 |
| Detector Model: PSL-3R | Detector S/N: 007A | Type: PIPE PROBE GAS PROPORTIONAL | |
| Background: 78 cpm | Beta Efficiency: .049 | | Survey Date: 6/05/01 |

Pre and Post source checks are included on this download: Yes ___ No ✓
If No is answered, then list the Download Files which include the Pre and Post source checks.
Pre File #: 132 Post File #: 133

Technician Review:

I have reveiwed this cover sheet and 2 pages of the report, 0 pages of comments, and 1 graph.

I performed this survey: Don Schumaker / [signature] Date: 6-11-01
Print name Signature
REPRINT

and,

I performed this survey: _____ / _____ Date: _____
Print name Signature

Corrections and Reasons:

Background entered incorrectly DPS
DETECTOR S/N # changed to 007A 6-11-01

Comment Resolution:

Survey Reviewed and Approved by: PAUL JONES / [signature] Date: 6/11/01
Print name Signature

Survey Date: 6/05/01 Report Date: 6/11/01 Page: 1
File: 132 Station: 2

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | ~~A0200~~ TA0211 | SUMP 01P04 | TAC01 | 02500 | Det Cal Due: 11/24/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| FLDBK | B9999 | DRAIN | 00000 | 2 | 600 | 777 | -14 | |
| | | | | | | Group Average: | -14 | |
| FLDCT | B9999 | DRAIN | 00000 | 3 | 180 | 210 | -363 | |
| FLDCT | B9999 | DRAIN | 00001 | 4 | 180 | 241 | 106 | |
| FLDCT | B9999 | DRAIN | 00002 | 5 | 180 | 347 | 1708 | |
| FLDCT | B9999 | DRAIN | 00001 | 6 | 180 | 284 | 756 | |
| FLDCT | B9999 | DRAIN | 00002 | 7 | 180 | 231 | -45 | |
| FLDCT | B9999 | DRAIN | 00003 | 8 | 180 | 264 | 454 | |
| FLDCT | B9999 | DRAIN | 00004 | 9 | 180 | 232 | -30 | |
| FLDCT | B9999 | DRAIN | 00005 | 10 | 180 | 244 | 151 | |
| FLDCT | B9999 | DRAIN | 00006 | 11 | 180 | 231 | -45 | |
| FLDCT | B9999 | DRAIN | 00007 | 12 | 180 | 241 | 106 | |
| FLDCT | B9999 | DRAIN | 00008 | 13 | 180 | 231 | -45 | |
| FLDCT | B9999 | DRAIN | 00009 | 14 | 180 | 249 | 227 | |
| FLDCT | B9999 | DRAIN | 00010 | 15 | 180 | 224 | -151 | |
| FLDCT | B9999 | DRAIN | 00011 | 16 | 180 | 249 | 227 | |
| FLDCT | B9999 | DRAIN | 00012 | 17 | 180 | 235 | 15 | |
| FLDCT | B9999 | DRAIN | 00013 | 18 | 180 | 237 | 45 | |
| FLDCT | B9999 | DRAIN | 00014 | 19 | 180 | 224 | -151 | |
| FLDCT | B9999 | DRAIN | 00015 | 20 | 180 | 241 | 106 | |
| FLDCT | B9999 | DRAIN | 00016 | 21 | 180 | 221 | -197 | |
| FLDCT | B9999 | DRAIN | 00017 | 22 | 180 | 236 | 30 | |
| FLDCT | B9999 | DRAIN | 00018 | 23 | 180 | 226 | -121 | |
| FLDCT | B9999 | DRAIN | 00019 | 24 | 180 | 230 | -60 | |
| FLDCT | B9999 | DRAIN | 00020 | 25 | 180 | 243 | 136 | |
| FLDCT | B9999 | DRAIN | 00040 | 26 | 60 | 67 | -499 | |
| FLDCT | B9999 | DRAIN | 00045 | 27 | 60 | 80 | 91 | |
| FLDCT | B9999 | DRAIN | 00049 | 28 | 60 | 79 | 45 | |
| | | | | | | Group Average: | 96 | |

ZZZZZ
PG 11/7/01

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | ZZZZZ | 12681 | TAC01 | 02500 | Det Cal Due: 11/24/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PRB00 | ZZZZZ | ZZZZZ | 00000 | 1 | 60 | 1688 | 73016 | * |
| | | | | | | Group Average: | 73016 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | ZZZZZ | ZZZZZ | TAC01 | 02500 | Det Cal Due: 11/24/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PRBBK | ZZZZZ | ZZZZZ | 00000 | 0 | 600 | 714 | -299 | |
| | | | | | | Group Average: | -299 | |

* Hi flag set at 2400 dpm/100 cm2

Comments

L1 & L2 location codes changed for Sample #'s 2 thru 28 as shown. No reprint
P. Jones 8/27/01

L7 location code changed for samples # 2 thru 28 as shown. No reprint
P. Jones 11/7/01

Survey Date: 6/05/01 Report Date: 6/11/01 Page: 2
File: 132 Station: 2

Comments

Total Number of Measurements on this Report: 29

NOTE: This report is grouped by:
Package (L1) (Package number)
Setup number (Detector parameters)
Det Type (L4) (GM pancake-flat surface, Beta 3.5-12" pipe, gamma at 1 m, etc.)
Reason (L3-345) (Char survey, source check, final survey, etc.)
Surface Cat (L2) (Wall, floor, drain, penetration, etc.)
Count Type (L5) (Field count, bkg, pre-, post-, etc.)
Bkgd Sub (L6) (Material code, i.e., wood, iron, concr, etc.)



* Hi flag set at 2400 dpm/100 cm2

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

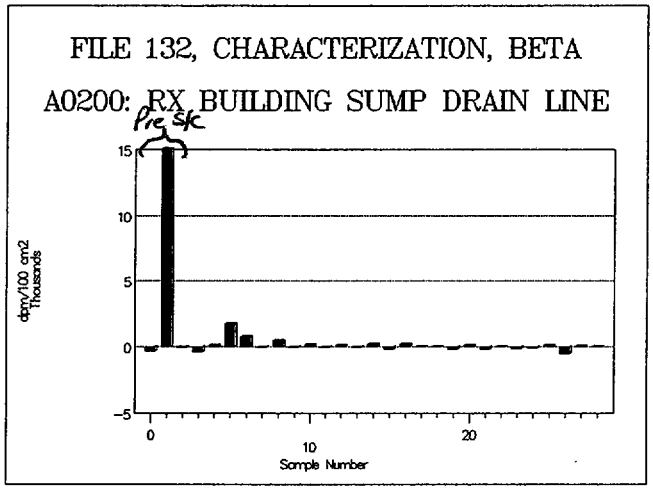
GEORGIA INSTITUTE OF TECHNOLOGY

6/11/2001 Graph of File 132 Station: 2

---

Survey Date: 6/05/2001 Survey Start Time: 16:23:04

Description: A0200: RX BUILDING SUMP DRAIN LINE

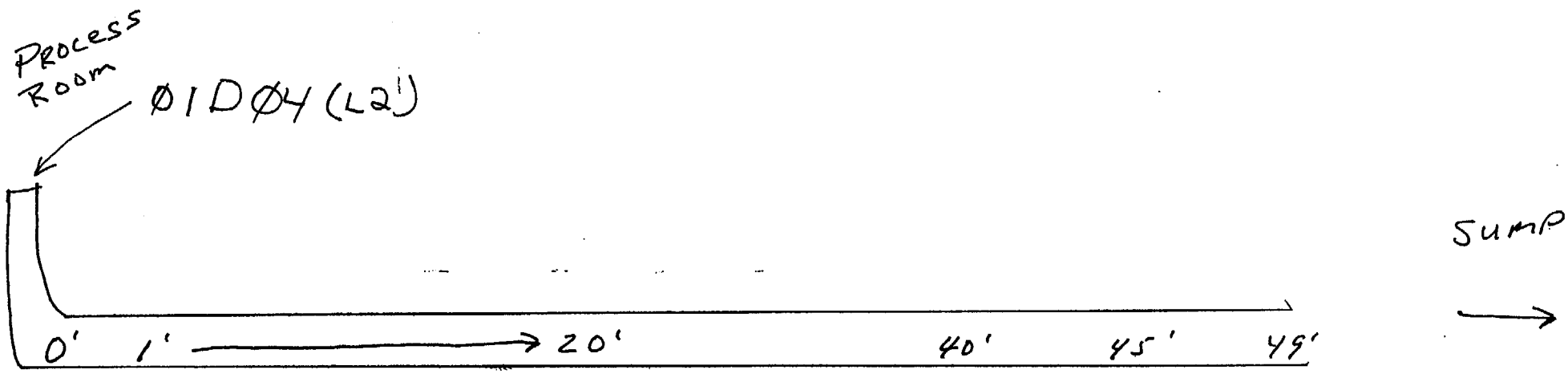



Flag set for 2400 dpm/100 cm2. Review values greater than this value.

Review this graph for visual outliers.

Mark outliers, source checks and backgrounds on the graph on this page.

# SUMP DRAIN LINE



The "net activity" (dpm/100 $cm^2$) presented on the following download report is raw data. It has not been corrected, if required, for the natural radioactivity that may be present in materials of construction. In addition the background used to correct for ambient exposure rates, instrument noise, etc. may need to be adjusted if more than one surface type was included in the download.

See the enclosed spreadsheets for the corrected results.

File #222

## ATTACHMENT 6.14
## SURVEY DOWNLOAD DATA SHEET

Download Technician: Print Name: PAUL JONES Signature: [signature] Station: 2 File: 222

Serial No. Verification: Model 2350: ☑ Detector: ☑ Problems: ☐ (See Comments)

Survey Technician(s):
Print Name: PAUL JONES User ID PAJ5034 Signature: [signature] Date: 8/25/01

Print Name: _____ User ID _____ Signature: _____ Date: _____

Survey Unit Description: Basement Drain #9, A0211
*(Example: Survey Package + description i.e. D16, Building 43, Area 09, Room 100, Floor - Grid Locations A1 through A7)*

Instrument Model and Serial No.: Model 2350 ☑ Model 2350-1 ☑: 129429

Instrument and Detector Calibration Due Dates: Survey Meter: 12/6/01 Detector: 9/2/01

Type Of Survey: ☑ Term Survey ☐ Characterization ☐ Information Only
☐ Other (explain):

| Type of Measurement | Detector Serial Number | Detector Model Number | Detector Efficiency | Source Mean BKG Value | Pre & Post Use Info | |
|---|---|---|---|---|---|---|
| | | | | | Pre File No. | Post File No. |
| ☐ Beta β | | 43-106B | | | | |
| ☐ Beta β | | 43-68B | | | | |
| ☐ Alpha α | | 43-68A | | | | |
| ☐ Gamma γ | | 44-2 | N/A | | | |
| Beta | 124111 | 43-94 | 0.030 | 2080/93 | 222 | 222 |

Local Area Background Measurements — MEAN Value in cpm !

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10 min. β Beta | 1 1245 | 2 1574 | 3 | 4 | 5 | 6 | 141 |
| α Alpha | 1 | 2 | 3 | 4 | 5 | 6 | |

COMMENTS: _____

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

Direct Beta Survey Report, dpm/100 cm2

| | | | |
|---|---|---|---|
| File Number: 222 | Survey Description: BASEMENT DRAIN # 9, A0211 | | |
| Survey Reason: TERMINATION | User ID: PAJ5034 | Technician name: Paul Jones | |
| Instrument Model: 2350-1 | S/N: 129429 | Calibration Due: 12/06/01 | Group: 2 |
| Detector Model: 43-94 | Detector S/N: 124111 | Type: PIPE | |
| Background: 141 cpm | Beta Efficiency: .030 | | Survey Date: 8/24/01 |

Pre and Post source checks are included on this download: Yes ✓ No ___
If No is answered, then list the Download Files which include the Pre and Post source checks.
Pre File #: _____ Post File #: _____

Technician Review:

I have reveiwed this cover sheet and _____ pages of the report, _____ pages of comments, and _____ graph.

I performed this survey: PAUL JONES / [signature] Date: 8/25/01
Print name Signature

and,

I performed this survey: _____ / _____ Date: _____
Print name Signature

Corrections and Reasons:

Comment Resolution:

Survey Reviewed and Approved by: PAUL JONES / [signature] Date: 8/25/01
Print name Signature

Survey Date: 8/24/01 Report Date: 8/25/01 Page: 1
File: 222 Station: 2

Comments

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 5 |
|---|---|---|---|---|---|
| | A0211 | 01D09 | TAT01 | 02500 | Det Cal Due: 9/02/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| FLDBK | B9999 | ZZZZZ | 00001 | 2 | 600 | 1245 | -550 | |
| FLDBK | B9999 | ZZZZZ | 00003 | 6 | 600 | 1574 | 547 | |
| | | | | | | Group Average: | -2 | |
| FLDCT | B9999 | ZZZZZ | 00001 | 3 | 60 | 150 | 300 | |
| FLDCT | B9999 | ZZZZZ | 00002 | 4 | 60 | 156 | 500 | |
| FLDCT | B9999 | ZZZZZ | 00003 | 5 | 60 | 136 | -167 | |
| | | | | | | Group Average: | 211 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 5 |
|---|---|---|---|---|---|
| | ZZZZZ | A3402 | TAT01 | 02302 | Det Cal Due: 9/02/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PRB00 | ZZZZZ | ZZZZZ | 00000 | 1 | 60 | 2094 | 65100 | * |
| | | | | | | Group Average: | 65100 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 5 |
|---|---|---|---|---|---|
| | ZZZZZ | ZZZZZ | TAT01 | 02302 | Det Cal Due: 9/02/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PRBBK | ZZZZZ | ZZZZZ | 00000 | 0 | 600 | 1166 | -813 | |
| | | | | | | Group Average: | -813 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 5 |
|---|---|---|---|---|---|
| | ZZZZZ | A3402 | TAT01 | 02500 | Det Cal Due: 9/02/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 8 | 60 | 1919 | 59267 | * |
| | | | | | | Group Average: | 59267 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 5 |
|---|---|---|---|---|---|
| | ZZZZZ | ZZZZZ | TAT01 | 02500 | Det Cal Due: 9/02/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PTBBK | ZZZZZ | ZZZZZ | 00000 | 7 | 600 | 998 | -1373 | |
| | | | | | | Group Average: | -1373 | |

* Hi flag set at 2400 dpm/100 cm2

Survey Date: 8/31/01 Report Date: 8/25/01 Page: 2
File: 222 Station: 2

Comments

Total Number of Measurements on this Report: 9

NOTE: This report is grouped by:
Package (L1) (Package number)
Setup number (Detector parameters)
Det Type (L4) (GM pancake-flat surface, Beta 3.5-12" pipe, gamma at 1 m, etc.)
Reason (L3-345) (Char survey, source check, final survey, etc.)
Surface Cat (L2) (Wall, floor, drain, penetration, etc.)
Count Type (L5) (Field count, bkg, pre-, post-, etc.)
Bkgd Sub (L6) (Material code, i.e., wood, iron, concr, etc.)



* Hi flag set at 2400 dpm/100 cm2

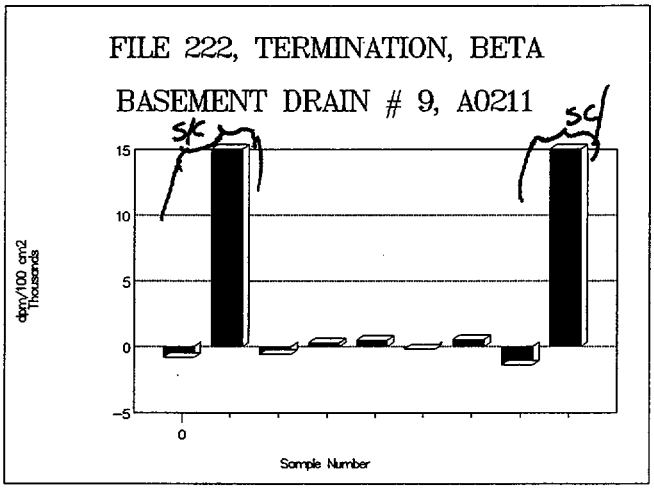
GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

8/25/2001 Graph of File 222 Station: 2

Survey Date: 8/24/2001 Survey Start Time: 10:42:16

Description: BASEMENT DRAIN # 9, A0211




Flag set for 2400 dpm/100 cm2. Review values greater than this value.

Review this graph for visual outliers.

Mark outliers, source checks and backgrounds on the graph on this page.

**ATTACHMENT 6.14**
**SURVEY DOWNLOAD DATA SHEET**

Download Print
Technician: Name: D. Schumacher Signature: [signature] Station: 2
File: 134
Serial No. Verification: Model 2350: ☒ Detector: ☒ Problems: ☐ (See Comments)

Survey Technician(s):
Print Name: D. Schumacher User ID: DS 4133 Signature: [signature] Date: 6-7-01

Print Name: _____ User ID _____ Signature: _____ Date: _____

Survey Unit Description: A0200: Rx Building Drain Line
*(Example: Survey Package + description i.e. D16, Building 43, Area 09, Room 100, Floor - Grid Locations A1 through A7)*

Instrument Model and Serial No.: Model 2350 ☐ Model 2350-1 ☒: 98642

Instrument and Detector Calibration Due Dates: Survey Meter: 10/18/01 Detector: 11-24-01

Type Of Survey: ☒ Term Survey ☐ Characterization ☐ Information Only
☐ Other (explain):

| Type of Measurement | Detector Serial Number | Detector Model Number | Detector Efficiency | Source Mean BKG Value | Pre & Post Use Info | |
|---|---|---|---|---|---|---|
| | | | | | Pre File No. | Post File No. |
| ☐ Beta β | | 43-106B | | | | |
| ☐ Beta β | | 43-68B | | | | |
| ☐ Alpha α | | 43-68A | | | | |
| ☐ Gamma γ | | 44-2 | N/A | | | |
| ☒ Beta | 007 | PSL-3R | .051 | | 133 | 134 |

| Local Area Background Measurements | | | | | | | MEAN Value in cpm |
|---|---|---|---|---|---|---|---|
| 10 min β Beta | 1 1047 | 2 | 3 | 4 | 5 | 6 | 105 |
| α Alpha | 1 | 2 | 3 | 4 | 5 | 6 | |

COMMENTS: _____

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

Direct Beta Survey Report, dpm/100 cm2

| | | | |
|---|---|---|---|
| File Number: 134 | Survey Description: RX BUILDING SUMP DRAIN LINE | | |
| Survey Reason: ~~CHARACTERIZATION~~ TERMINATION PJ 11/7/01 | User ID: DPS4133 | Technician name: Don Schumaker | |
| Instrument Model: 2350-1 | S/N: 98642 | Calibration Due: 10/18/01 | Group: 2 |
| Detector Model: PSL-3R | Detector S/N: 007 | Type: PIPE PROBE GAS PROPORTIONAL | |
| Background: 105 cpm | Beta Efficiency: .051 | | Survey Date: 6/07/01 |

Pre and Post source checks are included on this download: Yes ___ No ✓
If No is answered, then list the Download Files which include the Pre and Post source checks.
Pre File #: 133 Post File #: 134

Technician Review:

I have reveiwed this cover sheet and 2 pages of the report, 0 pages of comments, and 1 graph.

I performed this survey: Don Schumaker / [signature] Date: 7/21/01
Print name Signature

and,

I performed this survey: _____ / _____ Date: _____
Print name Signature

Corrections and Reasons:

Comment Resolution:

Survey Reviewed and Approved by: Pam Jones / [signature] Date: 11/7/01
Print name Signature

Survey Date: 6/07/01 Report Date: 7/21/01 Page: 1
File: 134 Station: 2

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | ~~A0200~~ A0211 | 01D04 | TAC01 | 02500 | Det Cal Due: 11/24/01 |

11/7/01 PG

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| FLDBK | B9999 | ZZZZZ | 00073 | 0 | 600 | 1047 | -6 | |
| | | | | | | Group Average: | -6 | |
| FLDCT | B9999 | ZZZZZ | 00073 | 1 | 60 | 125 | 392 | |
| FLDCT | B9999 | ZZZZZ | 00072 | 2 | 60 | 161 | 1098 | |
| FLDCT | B9999 | ZZZZZ | 00071 | 3 | 60 | 144 | 765 | |
| FLDCT | B9999 | ZZZZZ | 00070 | 4 | 60 | 147 | 824 | |
| FLDCT | B9999 | ZZZZZ | 00069 | 5 | 60 | 170 | 1275 | |
| FLDCT | B9999 | ZZZZZ | 00068 | 6 | 60 | 160 | 1078 | |
| FLDCT | B9999 | ZZZZZ | 00067 | 7 | 60 | 122 | 333 | |
| FLDCT | B9999 | ZZZZZ | 00066 | 8 | 60 | 144 | 765 | |
| FLDCT | B9999 | ZZZZZ | 00065 | 9 | 60 | 116 | 216 | |
| FLDCT | B9999 | ZZZZZ | 00064 | 10 | 60 | 124 | 373 | |
| FLDCT | B9999 | ZZZZZ | 00063 | 11 | 60 | 102 | -59 | |
| FLDCT | B9999 | ZZZZZ | 00062 | 12 | 60 | 134 | 569 | |
| FLDCT | B9999 | ZZZZZ | 00061 | 13 | 60 | 105 | 0 | |
| FLDCT | B9999 | ZZZZZ | 00060 | 14 | 60 | 118 | 255 | |
| FLDCT | B9999 | ZZZZZ | 00059 | 15 | 60 | 130 | 490 | |
| FLDCT | B9999 | ZZZZZ | 00058 | 16 | 60 | 108 | 59 | |
| FLDCT | B9999 | ZZZZZ | 00053 | 17 | 60 | 106 | 20 | |
| FLDCT | B9999 | ZZZZZ | 00051 | 18 | 60 | 102 | -59 | |
| | | | | | | Group Average: | 466 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | ZZZZZ | 12681 | TAC01 | 02500 | Det Cal Due: 11/24/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 20 | 60 | 1722 | 31706 | * |
| | | | | | | Group Average: | 31706 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | ZZZZZ | ZZZZZ | TAC01 | 02500 | Det Cal Due: 11/24/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PTBBK | ZZZZZ | ZZZZZ | 00000 | 19 | 600 | 899 | -296 | |
| | | | | | | Group Average: | -296 | |

Comments

Changed L1 code from A0200 to A0211 for Samples #'s 0 thru 18.
No reprint P. Gross 11/7/01

* Hi flag set at 2400 dpm/100 cm2

Survey Date: 6/07/01 Report Date: 7/21/01 Page: 2
File: 134 Station: 2

Comments

Total Number of Measurements on this Report: 21

NOTE: This report is grouped by:
Package (L1) (Package number)
Setup number (Detector parameters)
Det Type (L4) (GM pancake-flat surface, Beta 3.5-12" pipe, gamma at 1 m, etc.)
Reason (L3-345) (Char survey, source check, final survey, etc.)
Surface Cat (L2) (Wall, floor, drain, penetration, etc.)
Count Type (L5) (Field count, bkg, pre-, post-, etc.)
Bkgd Sub (L6) (Material code, i.e., wood, iron, concr, etc.)



* Hi flag set at 2400 dpm/100 cm2

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

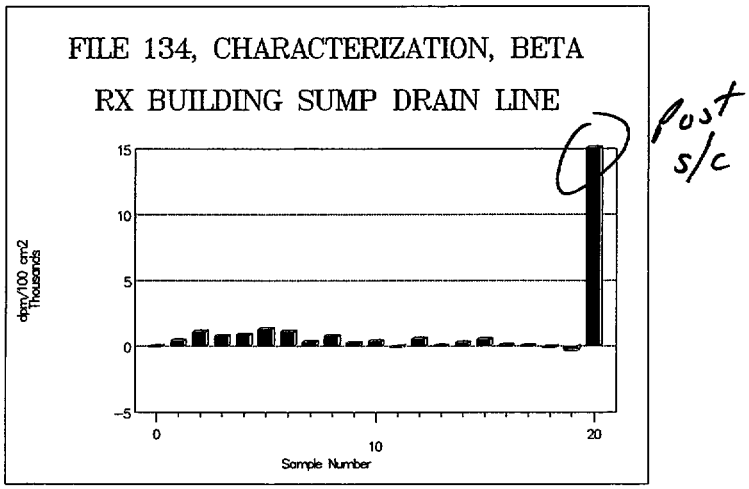
GEORGIA INSTITUTE OF TECHNOLOGY

7/21/2001 Graph of File 134 Station: 2

---

Survey Date: 6/07/2001 Survey Start Time: 16:15:32

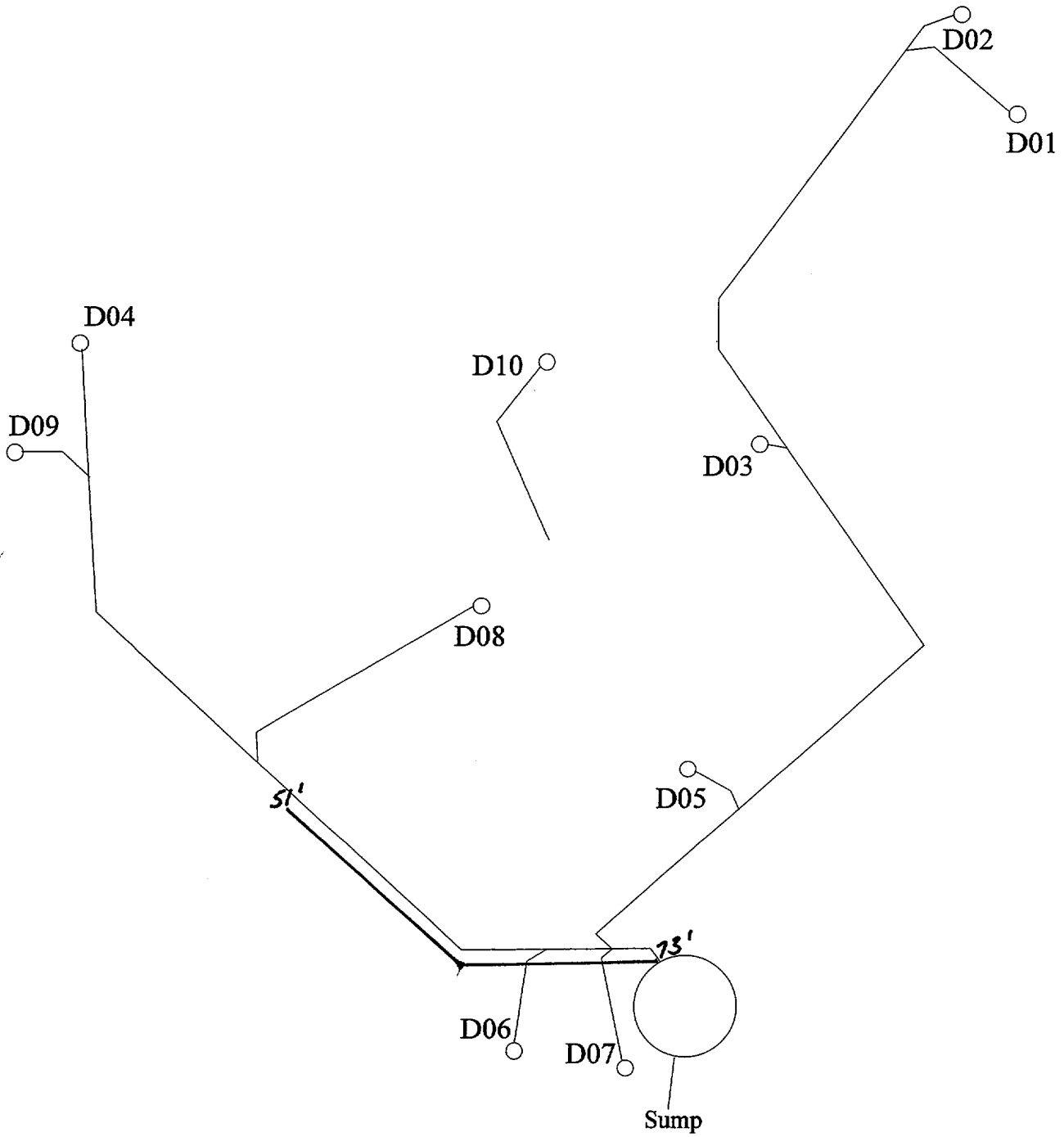
Description: RX BUILDING SUMP DRAIN LINE




Flag set for 2400 dpm/100 cm2. Review values greater than this value.

Review this graph for visual outliers.

Mark outliers, source checks and backgrounds on the graph on this page.




SEE L8 CODES

The "net activity" (dpm/100 $cm^2$) presented on the following download report is raw data. It has not been corrected, if required, for the natural radioactivity that may be present in materials of construction. In addition the background used to correct for ambient exposure rates, instrument noise, etc. may need to be adjusted if more than one surface type was included in the download.

See the enclosed spreadsheets for the corrected results.

File #148

## ATTACHMENT 6.14
## SURVEY DOWNLOAD DATA SHEET

wnload Print
Technician: Name: D. Schumaker Signature: [signature] Station: 2 File: 148
Serial No. Verification: Model 2350: ☑ Detector: ☑ Problems: ☐ (See Comments)

Survey Technician(s):
Print Name: D. Schumaker User ID DRS 4133 Signature: [signature] Date: 6/25/01

Print Name: _____ User ID _____ Signature: _____ Date: _____

Survey Unit Description: A0212: Ex Building Basement Sump Drain Line
*(Example: Survey Package + description i.e. D16, Building 43, Area 09, Room 100, Floor - Grid Locations A1 through A7)*

Instrument Model and Serial No.: Model 2350 ☐ Model 2350-1 ☑: 126176

Instrument and Detector Calibration Due Dates: Survey Meter: 12-19-01 Detector: 11-24-01

Type Of Survey: ☑ Term Survey ☐ Characterization ☐ Information Only
☐ Other (explain):

| Type of Measurement | Detector Serial Number | Detector Model Number | Detector Efficiency | Source Mean BKG Value | Pre & Post Use Info | |
|---|---|---|---|---|---|---|
| | | | | | Pre File No. | Post File No. |
| ☐ Beta β | | 43-106B | | | | |
| ☐ Beta β | | 43-68B | | | | |
| ☐ Alpha α | | 43-68A | | | | |
| ☐ Gamma γ | | 44-2 | N/A | | | |
| ☑ Beta | 0074 | PSL-3R | .052 | | | |

| Local Area Background Measurements | | | | | | | MEAN Value in cpm |
|---|---|---|---|---|---|---|---|
| β Beta (10 min) | 1 849 | 2 755 | 3 819 | 4 757 | 5 738 | 6 706 | 77 |
| α Alpha | 1 | 2 | 3 | 4 | 5 | 6 | |

COMMENTS: _____

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

Direct Beta Survey Report, dpm/100 cm2

| | | | |
|---|---|---|---|
| File Number: 148 | Survey Description: A0212: RX BUILDING BASEMENT SUMP DRAIN LINE | | |
| Survey Reason: TERMINATION | User ID: DPS4133 | Technician name: Don Schumaker | |
| Instrument Model: 2350-1 | S/N: 126170 | Calibration Due: 12/19/01 | Group: 2 |
| Detector Model: PSL-3R | Detector S/N: 007A | Type: PIPE PROBE GAS PROPORTIONAL | |
| Background: 77 cpm | Beta Efficiency: .052 | | Survey Date: 6/25/01 |

Pre and Post source checks are included on this download: Yes ✓ No ___
If No is answered, then list the Download Files which include the Pre and Post source checks.
Pre File #: _____ Post File #: _____

Technician Review:

I have reveiwed this cover sheet and 2 pages of the report, 0 pages of comments, and 1 graph.

I performed this survey: D. Schumaker / [signature] Date: 6/25/01
Print name / Signature

and,

I performed this survey: _____ / _____ Date: _____
Print name / Signature

Corrections and Reasons:

Comment Resolution:

Survey Reviewed and Approved by: PAUL JONES / [signature] Date: 6/25/01
Print name / Signature

Survey Date: 6/25/01 Report Date: 6/25/01 Page: 1
File: 148 Station: 2

Comments

L1 & L2 codes changed in database as shown.
No reprint. P.Gres 8/27/01

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | ~~A0200~~ A0511 | ~~01P02~~ 01D03 | TAT01 | 02500 | Det Cal Due: 11/24/01 |

8/22/01 PG 8/22/01

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| FLDBK | B9999 | ZZZZZ | 00000 | 2 | 600 | 849 | 338 | |
| FLDBK | B9999 | ZZZZZ | 00000 | 3 | 600 | 755 | -64 | |
| FLDBK | B9999 | ZZZZZ | 00000 | 4 | 600 | 819 | 209 | |
| FLDBK | B9999 | ZZZZZ | 00000 | 5 | 600 | 757 | -56 | |
| FLDBK | B9999 | ZZZZZ | 00000 | 6 | 600 | 738 | -137 | |
| FLDBK | B9999 | ZZZZZ | 00000 | 49 | 600 | 706 | -274 | |
| | | | | | | Group Average: | 3 | |
| FLDCT | B9999 | ZZZZZ | 00001 | 7 | 120 | 176 | 470 | |
| FLDCT | B9999 | ZZZZZ | 00002 | 8 | 120 | 138 | -342 | |
| FLDCT | B9999 | ZZZZZ | 00003 | 9 | 120 | 201 | 1004 | |
| FLDCT | B9999 | ZZZZZ | 00004 | 10 | 120 | 221 | 1432 | |
| FLDCT | B9999 | ZZZZZ | 00005 | 11 | 120 | 201 | 1004 | |
| FLDCT | B9999 | ZZZZZ | 00006 | 12 | 120 | 184 | 641 | |
| FLDCT | B9999 | ZZZZZ | 00007 | 13 | 120 | 172 | 385 | |
| FLDCT | B9999 | ZZZZZ | 00008 | 14 | 120 | 148 | -128 | |
| FLDCT | B9999 | ZZZZZ | 00009 | 15 | 120 | 138 | -342 | |
| FLDCT | B9999 | ZZZZZ | 00010 | 16 | 120 | 183 | 620 | |
| FLDCT | B9999 | ZZZZZ | 00011 | 17 | 120 | 180 | 556 | |
| FLDCT | B9999 | ZZZZZ | 00012 | 18 | 120 | 181 | 577 | |
| FLDCT | B9999 | ZZZZZ | 00013 | 19 | 120 | 174 | 427 | |
| FLDCT | B9999 | ZZZZZ | 00014 | 20 | 120 | 158 | 85 | |
| FLDCT | B9999 | ZZZZZ | 00015 | 21 | 120 | 174 | 427 | |
| FLDCT | B9999 | ZZZZZ | 00016 | 22 | 120 | 158 | 85 | |
| FLDCT | B9999 | ZZZZZ | 00017 | 23 | 120 | 169 | 321 | |
| FLDCT | B9999 | ZZZZZ | 00018 | 24 | 120 | 181 | 577 | |
| FLDCT | B9999 | ZZZZZ | 00019 | 25 | 120 | 143 | -235 | |
| FLDCT | B9999 | ZZZZZ | 00020 | 26 | 120 | 154 | 0 | |
| FLDCT | B9999 | ZZZZZ | 00021 | 27 | 120 | 124 | -641 | |
| FLDCT | B9999 | ZZZZZ | 00022 | 28 | 120 | 139 | -321 | |
| FLDCT | B9999 | ZZZZZ | 00023 | 29 | 120 | 148 | -128 | |
| FLDCT | B9999 | ZZZZZ | 00024 | 30 | 120 | 146 | -171 | |
| FLDCT | B9999 | ZZZZZ | 00025 | 31 | 120 | 182 | 598 | |
| FLDCT | B9999 | ZZZZZ | 00026 | 32 | 120 | 156 | 43 | |
| FLDCT | B9999 | ZZZZZ | 00027 | 33 | 120 | 180 | 556 | |
| FLDCT | B9999 | ZZZZZ | 00028 | 34 | 120 | 151 | -64 | |
| FLDCT | B9999 | ZZZZZ | 00029 | 35 | 120 | 158 | 85 | |
| FLDCT | B9999 | ZZZZZ | 00030 | 36 | 120 | 160 | 128 | |
| FLDCT | B9999 | ZZZZZ | 00031 | 37 | 120 | 164 | 214 | |
| FLDCT | B9999 | ZZZZZ | 00032 | 38 | 120 | 137 | -363 | |
| FLDCT | B9999 | ZZZZZ | 00033 | 39 | 120 | 138 | -342 | |
| FLDCT | B9999 | ZZZZZ | 00034 | 40 | 120 | 133 | -449 | |
| FLDCT | B9999 | ZZZZZ | 00035 | 41 | 120 | 132 | -470 | |
| FLDCT | B9999 | ZZZZZ | 00036 | 42 | 120 | 148 | -128 | |
| FLDCT | B9999 | ZZZZZ | 00037 | 43 | 120 | 125 | -620 | |
| FLDCT | B9999 | ZZZZZ | 00038 | 44 | 120 | 132 | -470 | |
| FLDCT | B9999 | ZZZZZ | 00039 | 45 | 120 | 145 | -192 | |
| FLDCT | B9999 | ZZZZZ | 00040 | 46 | 120 | 163 | 192 | |
| FLDCT | B9999 | ZZZZZ | 00041 | 47 | 120 | 159 | 107 | |
| FLDCT | B9999 | ZZZZZ | 00042 | 48 | 120 | 151 | -64 | |
| | | | | | | Group Average: | 121 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | ZZZZZ | 12681 | TAT01 | 02500 | Det Cal Due: 11/24/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PRB00 | ZZZZZ | ZZZZZ | 00000 | 1 | 60 | 1810 | 74060 | * |

* Hi flag set at 2400 dpm/100 cm2

Survey Date: 6/25/01 Report Date: 6/25/01 Page: 2
File: 148 Station: 2

Comments

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | ZZZZZ | 12681 | TAT01 | 02500 | Det Cal Due: 11/24/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Group Average: | 74060 | |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 51 | 60 | 1884 | 77222 | * |
| | | | | | | Group Average: | 77222 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | ZZZZZ | ZZZZZ | TAT01 | 02500 | Det Cal Due: 11/24/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PRBBK | ZZZZZ | ZZZZZ | 00000 | 0 | 600 | 609 | -688 | |
| | | | | | | Group Average: | -688 | |
| PTBBK | ZZZZZ | ZZZZZ | 00000 | 50 | 600 | 686 | -359 | |
| | | | | | | Group Average: | -359 | |

Total Number of Measurements on this Report: 52

NOTE: This report is grouped by:
Package (L1) (Package number)
Setup number (Detector parameters)
Det Type (L4) (GM pancake-flat surface, Beta 3.5-12" pipe, gamma at 1 m, etc.)
Reason (L3-345) (Char survey, source check, final survey, etc.)
Surface Cat (L2) (Wall, floor, drain, penetration, etc.)
Count Type (L5) (Field count, bkg, pre-, post-, etc.)
Bkgd Sub (L6) (Material code, i.e., wood, iron, concr, etc.)



* Hi flag set at 2400 dpm/100 cm2

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

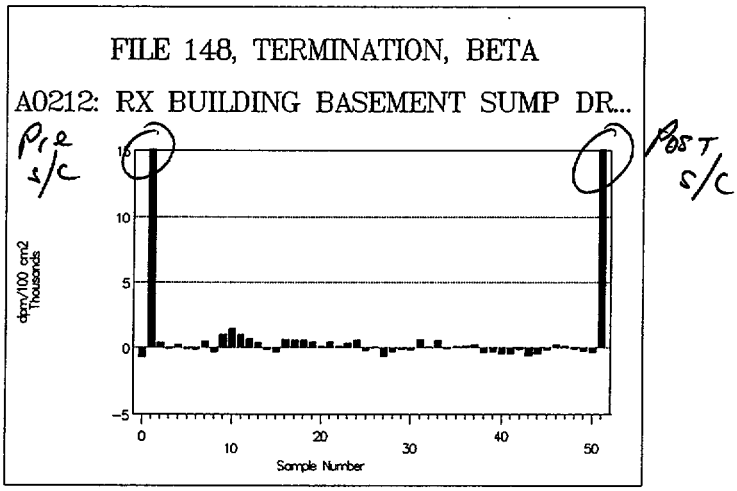
GEORGIA INSTITUTE OF TECHNOLOGY

6/25/2001 Graph of File 148 Station: 2

---

Survey Date: 6/25/2001 Survey Start Time: 09:51:34

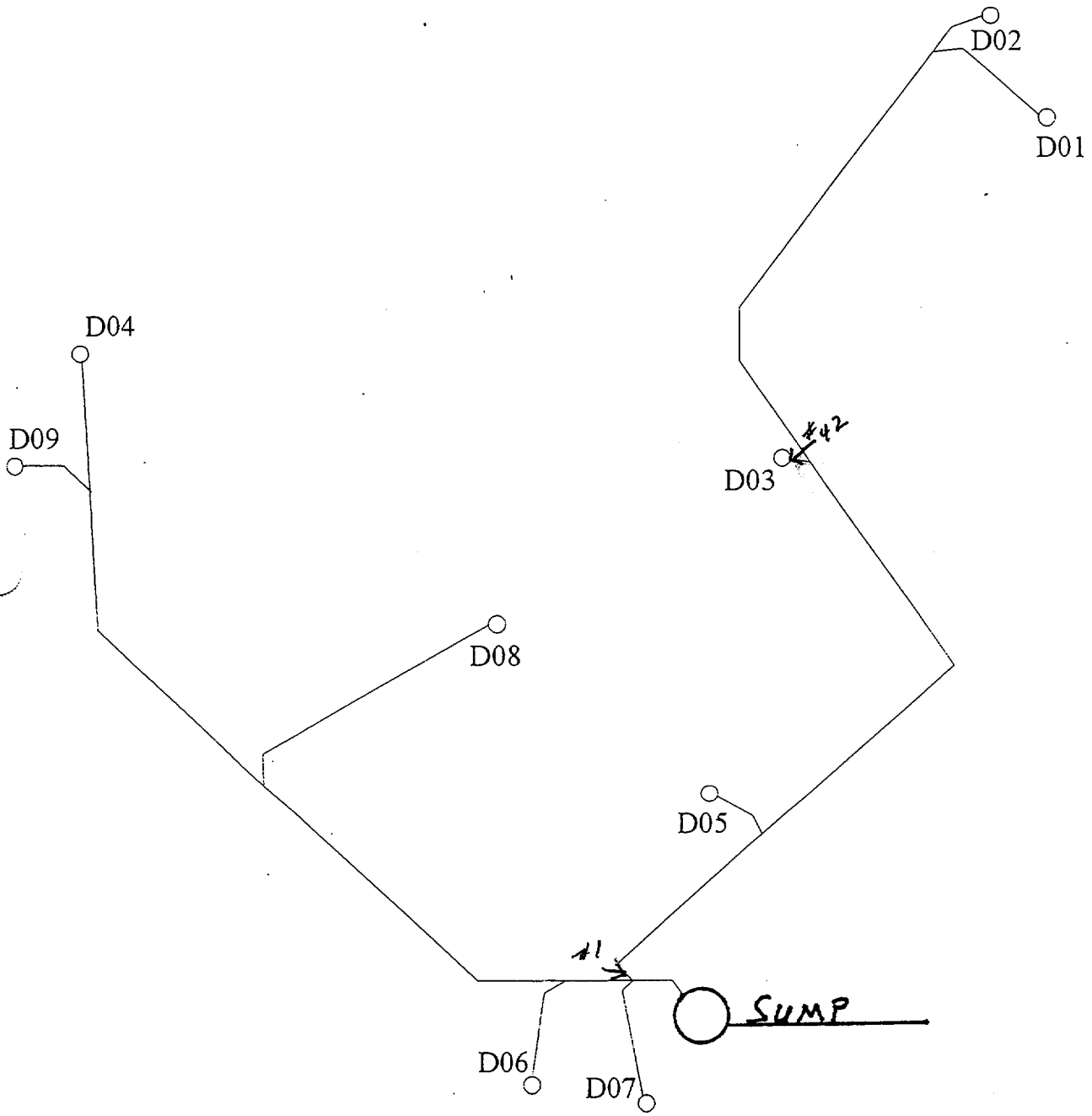
Description: A0212: RX BUILDING BASEMENT SUMP DRAIN LINE




Flag set for 2400 dpm/100 cm2. Review values greater than this value.

Review this graph for visual outliers.

Mark outliers, source checks and backgrounds on the graph on this page.




DATA PT. TAKEN EVERY FOOT

100% SCAN

## ATTACHMENT 6.14
## SURVEY DOWNLOAD DATA SHEET

Download Technician: Print Name: PAUL JONES Signature: [signature] Station: 2 File: 221

Serial No. Verification: Model 2350: ☐ Detector: ☐ Problems: ☐ (See Comments)

Survey Technician(s): Print Name: PAUL JONES User ID PAJ5034 Signature: [signature] Date: 8/24/01

Print Name: _____ User ID _____ Signature: _____ Date: _____

Survey Unit Description: Package 11 01D01, D02 01D05 - 01D09
*(Example: Survey Package + description i.e. D16, Building 43, Area 09, Room 100, Floor - Grid Locations A1 through A7)*

Instrument Model and Serial No.: Model 2350 ~~☐~~ 8/24/01 Model 2350-1 ~~☐~~ 126170

Instrument and Detector Calibration Due Dates: Survey Meter: 12/19/01 Detector: 11/24/01

Type Of Survey: ☒ Term Survey ☐ Characterization ☐ Information Only
☐ Other (explain):

| Type of Measurement | Detector Serial Number | Detector Model Number | Detector Efficiency | Source Mean BKG Value | Pre & Post Use Info | |
|---|---|---|---|---|---|---|
| | | | | | Pre File No. | Post File No. |
| ☐ Beta β | | 43-106B | | | | |
| ☐ Beta β | | 43-68B | | | | |
| ☐ Alpha α | | 43-68A | | | | |
| ☐ Gamma γ | | 44-2 | N/A | | | |
| ☒ Beta | 007 | PSL-3R | 0.055 ~~0.056~~ 8/24 | 1843/74 | 221 | 221 |

Local Area Background Measurements (10 min) MEAN Value in cpm ↓

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| β Beta | 1 588 | 2 656 | 3 | 4 | 5 | 6 | 62 |
| α Alpha | 1 | 2 | 3 | 4 | 5 | 6 | |

COMMENTS: _____

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

GEORGIA INSTITUTE OF TECHNOLOGY

Direct Beta Survey Report, dpm/100 cm2

| | | | |
|---|---|---|---|
| File Number: 221 | Survey Description: A0211, 01D01, 01D02, 01D05-01D08 | | |
| Survey Reason: TERMINATION | User ID: PAJ5034 | Technician name: Paul Jones | |
| Instrument Model: 2350-1 | S/N: 126170 | Calibration Due: 12/19/01 | Group: 2 |
| Detector Model: PSL-3R | Detector S/N: 007 | Type: PIPE PROBE GAS PROPORTIONAL | |
| Background: 62 cpm | Beta Efficiency: .055 | | Survey Date: 8/24/01 |

Pre and Post source checks are included on this download: Yes ✓ No ____
If No is answered, then list the Download Files which include the Pre and Post source checks.
Pre File #: _____ Post File #: _____

Technician Review:

I have reveiwed this cover sheet and 3 pages of the report, 1 pages of comments, and 1 graph.

I performed this survey: PAUL JONES / Paul Jones Date: 8/25/01
Print name Signature

and,

I performed this survey: _____ / _____ Date: _____
Print name Signature

Corrections and Reasons:

Comment Resolution:

Survey Reviewed and Approved by: PAUL JONES / Paul Jones Date: 8/25/01
Print name Signature

Survey Date: 8/24/01 Report Date: 8/25/01 Page: 1
File: 221 Station: 2

Comments

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | A0211 | 01D01 | TAT01 | 02500 | Det Cal Due: 11/24/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| FLDBK | B9999 | ZZZZZ | 00001 | 2 | 600 | 588 | -58 | |
| | | | | | | Group Average: | -58 | |
| FLDCT | B9999 | ZZZZZ | 00001 | 3 | 60 | 56 | -109 | |
| FLDCT | B9999 | ZZZZZ | 00002 | 4 | 60 | 70 | 145 | |
| FLDCT | B9999 | ZZZZZ | 00003 | 5 | 60 | 69 | 127 | |
| | | | | | | Group Average: | 55 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | A0211 | 01D02 | TAT01 | 02500 | Det Cal Due: 11/24/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| FLDCT | B9999 | ZZZZZ | 00001 | 6 | 60 | 68 | 109 | |
| FLDCT | B9999 | ZZZZZ | 00002 | 7 | 60 | 64 | 36 | |
| FLDCT | B9999 | ZZZZZ | 00003 | 8 | 60 | 70 | 145 | |
| | | | | | | Group Average: | 97 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | A0211 | 01D05 | TAT01 | 02500 | Det Cal Due: 11/24/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| FLDCT | B9999 | ZZZZZ | 00001 | 9 | 60 | 70 | 145 | |
| FLDCT | B9999 | ZZZZZ | 00002 | 10 | 60 | 62 | 0 | |
| FLDCT | B9999 | ZZZZZ | 00003 | 11 | 60 | 63 | 18 | |
| | | | | | | Group Average: | 55 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | A0211 | 01D06 | TAT01 | 02500 | Det Cal Due: 11/24/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| FLDCT | B9999 | ZZZZZ | 00001 | 15 | 60 | 72 | 182 | |
| FLDCT | B9999 | ZZZZZ | 00002 | 16 | 60 | 66 | 73 | |
| FLDCT | B9999 | ZZZZZ | 00003 | 17 | 60 | 72 | 182 | |
| | | | | | | Group Average: | 145 | |

* Hi flag set at 2400 dpm/100 cm2

Survey Date: 8/24/01 Report Date: 8/25/01 Page: 2
File: 221 Station: 2

Comments

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | A0211 | 01D07 | TAT01 | 02500 | Det Cal Due: 11/24/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| FLDCT | B9999 | ZZZZZ | 00001 | 12 | 60 | 72 | 182 | |
| FLDCT | B9999 | ZZZZZ | 00002 | 13 | 60 | 64 | 36 | |
| FLDCT | B9999 | ZZZZZ | 00003 | 14 | 60 | 96 | 618 | |
| | | | | | | Group Average: | 279 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | A0211 | 01D08 | TAT01 | 02500 | Det Cal Due: 11/24/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| FLDBK | B9999 | ZZZZZ | 00003 | 21 | 600 | 656 | 65 | |
| | | | | | | Group Average: | 65 | |
| FLDCT | B9999 | ZZZZZ | 00001 | 18 | 60 | 65 | 55 | |
| FLDCT | B9999 | ZZZZZ | 00002 | 19 | 60 | 69 | 127 | |
| FLDCT | B9999 | ZZZZZ | 00003 | 20 | 60 | 83 | 382 | |
| | | | | | | Group Average: | 188 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | ZZZZZ | 12681 | TAT01 | 02500 | Det Cal Due: 11/24/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PRB00 | ZZZZZ | ZZZZZ | 00000 | 1 | 60 | 1894 | 33309 | * |
| | | | | | | Group Average: | 33309 | |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 23 | 60 | 1917 | 33727 | * |
| | | | | | | Group Average: | 33727 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 14 |
|---|---|---|---|---|---|
| | ZZZZZ | ZZZZZ | TAT01 | 02500 | Det Cal Due: 11/24/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PRBBK | ZZZZZ | ZZZZZ | 00000 | 0 | 600 | 562 | -105 | |
| | | | | | | Group Average: | -105 | |
| PTBBK | ZZZZZ | ZZZZZ | 00000 | 22 | 600 | 740 | 218 | |
| | | | | | | Group Average: | 218 | |

* Hi flag set at 2400 dpm/100 cm2

Survey Date: 8/24/01 Report Date: 8/25/01 Page: 3
File: 221 Station: 2

Comments

Total Number of Measurements on this Report: 24

NOTE: This report is grouped by:
Package (L1) (Package number)
Setup number (Detector parameters)
Det Type (L4) (GM pancake-flat surface, Beta 3.5-12" pipe, gamma at 1 m, etc.)
Reason (L3-345) (Char survey, source check, final survey, etc.)
Surface Cat (L2) (Wall, floor, drain, penetration, etc.)
Count Type (L5) (Field count, bkg, pre-, post-, etc.)
Bkgd Sub (L6) (Material code, i.e., wood, iron, concr, etc.)



* Hi flag set at 2400 dpm/100 cm2

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

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8/25/01 Comments Report for File 221 Station: 2

| Comment Number | Comment |
|---|---|
| 1 | Changed L8(Location Number) from 00002 to 00003 for Sample 8. Because incorrect location code was entered. |

GTS:0143 :C:\PDOX35\M2350\COMMENTS:R1

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

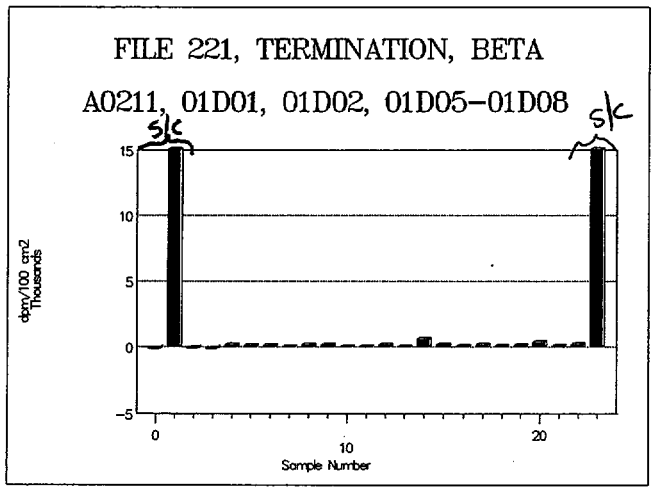
GEORGIA INSTITUTE OF TECHNOLOGY

8/25/2001 Graph of File 221 Station: 2

---

Survey Date: 8/24/2001 Survey Start Time: 15:23:56

Description: A0211, 01D01, 01D02, 01D05-01D08




Flag set for 2400 dpm/100 cm2. Review values greater than this value.

Review this graph for visual outliers.

Mark outliers, source checks and backgrounds on the graph on this page.

ATTACHMENT 6.14
SURVEY DOWNLOAD DATA SHEET

Download Technician: Print Name: D Schumaker Signature: Station: 2 File: 107
Serial No. Verification: Model 2350: ☐ Detector: ☐ Problems: ☐ (See Comments)

Survey Technician(s):
Print Name: D Schumaker User ID DDS 4133 Signature: Date: 4/23/01

Print Name: User ID Signature: Date:

Survey Unit Description: A0200 Rx Bldg Basement D20 Line
*(Example: Survey Package + description i.e. D16, Building 43, Area 09, Room 100, Floor - Grid Locations A1 through A7)*

Instrument Model and Serial No.: Model 2350 ☐ Model 2350-1 ☒: 129429

Instrument and Detector Calibration Due Dates: Survey Meter: 4-30-01 Detector: ~~124111~~ 4-23-01 9/2/01

Type Of Survey: ☒ Term Survey ☐ Characterization ☐ Information Only
☐ Other (explain):

| Type of Measurement | Detector Serial Number | Detector Model Number | Detector Efficiency | Source Mean BKG Value | Pre & Post Use Info | |
|---|---|---|---|---|---|---|
| | | | | | Pre File No. | Post File No. |
| ☐ Beta β | | 43-106B | | | | |
| ☐ Beta β | | 43-68B | | | | |
| ☐ Alpha α | | 43-68A | | | | |
| ☐ Gamma γ | | 44-2 | N/A | | | |
| ☒ Beta | 124111 A | 43-94 | 0.048 | 3320 / 91.5 | 107 | 107 |

Local Area Background Measurements — MEAN Value in cpm ↓

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| β Beta (10 min) | 1 1156 | 2 | 3 | 4 | 5 | 6 | 116 |
| α Alpha | 1 | 2 | 3 | 4 | 5 | 6 | |

COMMENTS: 3/4" Pipe

GTS DURATEK RADIOLOGICAL ENGINEERING & FIELD SERVICES

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Direct Beta Survey Report, dpm/100 cm2

| | | | |
|---|---|---|---|
| File Number: 107 | Survey Description: A0200: RX BUILDING BASEMENT D20 LINE | | |
| Survey Reason: TERMINATION | User ID: DPS4133 | Technician name: Don Schumaker | |
| Instrument Model: 2350-1 | S/N: 129429 | Calibration Due: 4/30/01 | Group: 2 |
| Detector Model: 43-94 | Detector S/N: 124111A | Type: PIPE | Proportional Detector, Beta Window |
| Background: 116 cpm | Beta Efficiency: .048 | | Survey Date: 4/23/01 |

Pre and Post source checks are included on this download: Yes ✓ No ___
If No is answered, then list the Download Files which include the Pre and Post source checks.
Pre File #: _____ Post File #: _____

Technician Review:

I have reveiwed this cover sheet and 1 pages of the report, 0 pages of comments, and 1 graph.

I performed this survey: D. Schumaker / [signature] Date: 4/23/01
Print name Signature

and,

I performed this survey: _____ / _____ Date: _____
Print name Signature

Corrections and Reasons:

Comment Resolution:

Survey Reviewed and Approved by: PAUL JONES / [signature] Date: 6/6/01
Print name Signature

Survey Date: 4/23/01 Report Date: 4/23/01 Page: 1
File: 107 Station: 2

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 5 |
|---|---|---|---|---|---|
| | ~~A0200~~ A0211 | ~~01P01~~ 01D10 8/24/01 | TAT01 | 02300 | Det Cal Due: 9/02/01 |

8/24/01

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| FLDBK | B9999 | ZZZZZ | 00000 | 2 | 600 | 1156 | -9 | |
| | | | | | | Group Average: | -9 | |
| FLDCT | B9999 | ZZZZZ | 00000 | 3 | 120 | 238 | 69 | |
| FLDCT | B9999 | ZZZZZ | 00001 | 4 | 120 | 344 | 1296 | |
| FLDCT | B9999 | ZZZZZ | 00002 | 5 | 120 | 378 | 1690 | |
| FLDCT | B9999 | ZZZZZ | 00003 | 6 | 120 | 342 | 1273 | |
| FLDCT | B9999 | ZZZZZ | 00004 | 7 | 120 | 356 | 1435 | |
| FLDCT | B9999 | ZZZZZ | 00005 | 8 | 120 | 343 | 1285 | |
| FLDCT | B9999 | ZZZZZ | 00006 | 9 | 120 | 382 | 1736 | |
| FLDCT | B9999 | ZZZZZ | 00007 | 10 | 120 | 349 | 1354 | |
| FLDCT | B9999 | ZZZZZ | 00008 | 11 | 120 | 315 | 961 | |
| FLDCT | B9999 | ZZZZZ | 00009 | 12 | 120 | 284 | 602 | |
| FLDCT | B9999 | ZZZZZ | 00010 | 13 | 120 | 270 | 440 | |
| | | | | | | Group Average: | 1104 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 5 |
|---|---|---|---|---|---|
| | ZZZZZ | A3404 | TAT01 | 02300 | Det Cal Due: 9/02/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PRB00 | ZZZZZ | ZZZZZ | 00000 | 1 | 60 | 3320 | 74167 | * |
| | | | | | | Group Average: | 74167 | |
| PTB00 | ZZZZZ | ZZZZZ | 00000 | 15 | 60 | 3339 | 74606 | * |
| | | | | | | Group Average: | 74606 | |

| Survey Code | L1 | L2 | L3 | L4 | Setup Number 5 |
|---|---|---|---|---|---|
| | ZZZZZ | ZZZZZ | TAT01 | 02300 | Det Cal Due: 9/02/01 |

| L5 CntTy | L6 BkgSu | L7 Grid | L8 LocNm | Sample Number | Count Time | Gross Counts | Net dpm/100cm2 | H i |
|---|---|---|---|---|---|---|---|---|
| PRBBK | ZZZZZ | ZZZZZ | 00000 | 0 | 600 | 915 | -567 | |
| | | | | | | Group Average: | -567 | |
| PTBBK | ZZZZZ | ZZZZZ | 00000 | 14 | 600 | 794 | -847 | |
| | | | | | | Group Average: | -847 | |

* Hi flag set at 2400 dpm/100 cm2

Comments

Changed L1 code from A0200 to A0211 for sample numbers 2 through 13.

Changed L2 code from 01P01 to 01D10 for sample numbers 2 through 13.

No reprint.

P. Jones 8/24/01

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4/23/2001 Graph of File 107 Station: 2

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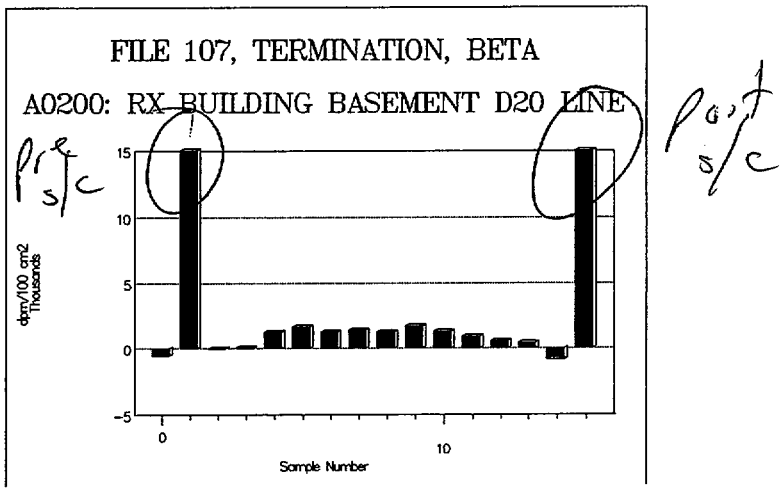
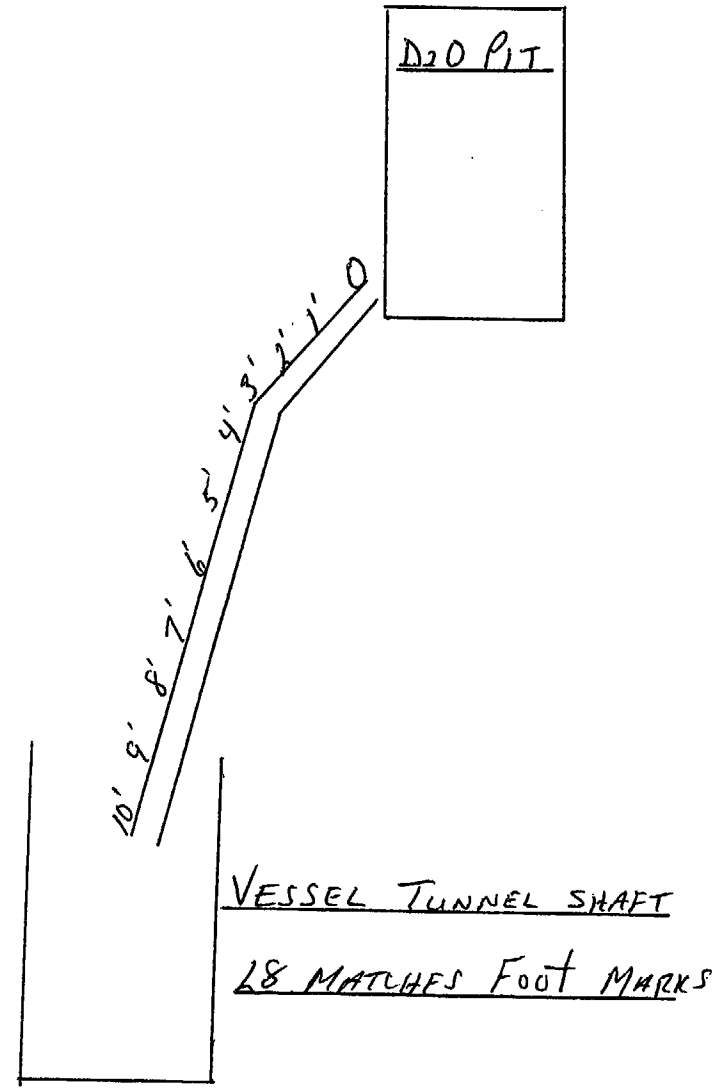
Survey Date: 4/23/2001 Survey Start Time: 11:23:20

Description: A0200: RX BUILDING BASEMENT D20 LINE



053

# A0200: Rx BLDG. BASEMENT



# Section 4

## Package 11
## Removable Beta Contamination for the Basement Drain Lines (including lab reports)

Removable Beta Contamination Package A0211 (Basement Drain Lines)

| Desc. | Gross Counts | Count Time (sec) | Sample Area ($cm^2$) | Surface | Count Type | Row | Location | Efficiency (dpm/cpm) | Background (cpm) | Activity ($dpm/100cm^2$) | Net Activity ($dpm/100cm^2$) | MDA ($dpm/100cm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 01D01 | 7 | 90 | 100 | 01D01 | FLDCT | ZZZZZ | 00001 | 0.3497 | 2 | 8 | 9 | 16 |
| | 5 | 90 | 100 | 01D01 | FLDCT | ZZZZZ | 00002 | 0.3497 | 2 | 5 | 5 | 16 |
| 01D02 | 6 | 90 | 100 | 01D02 | FLDCT | ZZZZZ | 00001 | 0.3497 | 2 | 7 | 7 | 16 |
| | 3 | 90 | 100 | 01D02 | FLDCT | ZZZZZ | 00002 | 0.3497 | 2 | 1 | 1 | 16 |
| 01D03 | 3 | 90 | 100 | 01D03 | FLDCT | ZZZZZ | 00001 | 0.3497 | 2 | 1 | 1 | 16 |
| | 1 | 90 | 100 | 01D03 | FLDCT | ZZZZZ | 00002 | 0.3497 | 2 | -3 | -3 | 16 |
| 01D04 | 4 | 90 | 100 | 01D04 | FLDCT | ZZZZZ | 00001 | 0.3497 | 2 | 3 | 3 | 16 |
| | 6 | 90 | 100 | 01D04 | FLDCT | ZZZZZ | 00002 | 0.3497 | 2 | 7 | 7 | 16 |
| 01D05 | 7 | 90 | 100 | 01D05 | FLDCT | ZZZZZ | 00001 | 0.3497 | 2 | 8 | 9 | 16 |
| | 2 | 90 | 100 | 01D05 | FLDCT | ZZZZZ | 00002 | 0.3497 | 2 | -1 | -1 | 16 |
| 01D06 | 0 | 90 | 100 | 01D06 | FLDCT | ZZZZZ | 00001 | 0.3497 | 2 | -5 | -5 | 16 |
| | 6 | 90 | 100 | 01D06 | FLDCT | ZZZZZ | 00002 | 0.3497 | 2 | 7 | 7 | 16 |
| 01D07 | 0 | 90 | 100 | 01D07 | FLDCT | ZZZZZ | 00001 | 0.3497 | 2 | -5 | -6 | 16 |
| | 3 | 90 | 100 | 01D07 | FLDCT | ZZZZZ | 00002 | 0.3497 | 2 | 1 | 1 | 16 |
| 01D08 | 8 | 90 | 100 | 01D08 | FLDCT | ZZZZZ | 00001 | 0.3497 | 2 | 10 | 10 | 16 |
| | 0 | 90 | 100 | 01D08 | FLDCT | ZZZZZ | 00002 | 0.3497 | 2 | -5 | -5 | 16 |
| 01D09 | 1 | 90 | 100 | 01D10 | FLDCT | ZZZZZ | 00001 | 0.3497 | 2 | -3 | -4 | 16 |
| | 8 | 90 | 100 | 01D10 | FLDCT | ZZZZZ | 00002 | 0.3497 | 2 | 10 | 11 | 16 |
| 01D10 | 3 | 90 | 100 | 01D10 | FLDCT | ZZZZZ | 00001 | 0.3497 | 2 | 1 | 1 | 16 |
| | 7 | 90 | 100 | 01D10 | FLDCT | ZZZZZ | 00002 | 0.3497 | 2 | 8 | 9 | 16 |
| | | | | | | | | | | | | |
| | | | | | | | | | # Measurements | | 20 | |
| | | | | | | | | | | Average | 3 | $dpm/100cm^2$ |
| | | | | | | | | | | Maximum | 11 | $dpm/100cm^2$ |
| | | | | | | | | | | STD DEV | 5 | $dpm/100cm^2$ |
| | | | | | | | | | 95% CL on Mean | | 5 | $dpm/100cm^2$ |



055

FINAL SURVEY 01D01 [Z] PIN 11
FIC IPC9025 216712

| | | | ALPHA Eff: 34.97% Bkg: 0.00 cpm MDA: 5.17 dpm | | | | BETA Eff: 34.25% Bkg: 1.70 cpm MDA: 19.73 dpm | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SN | RPT | ID | COUNTS | NET CPM | DPM | LIMITS | COUNTS | NET CPM | DPM | LIMITS | DATE | TIME |
| 001 | 00 | 1 | 0 | 0.00 | 0.00 | | 7 | 2.97 | 8.66 | | 08-24-2001 | 14:05:27 |
| 002 | 00 | 2 | 0 | 0.00 | 0.00 | | 5 | 1.63 | 4.77 | | 08-24-2001 | 14:07:25 |

Performed By: [signature] Date: 8/24/01

Reviewed By: [signature] Date: 8/24/01

FINAL SURVEY 01D02 [Z] PIN 11
PIC IPC9025 216712

| | | | ALPHA | | | | BETA | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Eff: 34.97% Bkg: 0.00 cpm MDA: 5.17 dpm | | | | Eff: 34.25% Bkg: 1.70 cpm MDA: 19.73 dpm | | | | | |
| SN | RPT | ID | COUNTS | NET CPM | DPM | LIMITS | COUNTS | NET CPM | DPM | LIMITS | DATE | TIME |
| 001 | 00 | 1 | 0 | 0.00 | 0.00 | | 6 | 2.30 | 6.72 | | 08-24-2001 | 14:10:17 |
| 002 | 00 | 2 | 0 | 0.00 | 0.00 | | 3 | 0.30 | 0.88 | | 08-24-2001 | 14:12:16 |

Performed By: [signature] Date: 8/24/01

Reviewed By: [signature] Date: 8/29/01

FINAL SURVEY 01D03 [Z] PIN 11
PIC IPC9025 216712

| | | | ALPHA | | | | BETA | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Eff: 34.97% | Bkg: 0.00 cpm | MDA: 5.17 dpm | | Eff: 34.25% | Bkg: 1.70 cpm | MDA: 19.73 dpm | | | |
| SN | RPT | ID | COUNTS | NET CPM | DPM | LIMITS | COUNTS | NET CPM | DPM | LIMITS | DATE | TIME |
| 001 | 00 | 1 | 0 | 0.00 | 0.00 | | 3 | 0.30 | 0.88 | | 08-24-2001 | 14:16:14 |
| 002 | 00 | 2 | 0 | 0.00 | 0.00 | | 1 | -1.03 | -3.02 | | 08-24-2001 | 14:18:13 |

Performed By: [signature] Date: 8/24/01

Reviewed By: [signature] Date: 8/25/01

FINAL SURVEY 01D04 [Z] PIN 11
PIC IPC9025 216712

| | | | ALPHA | | | | BETA | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Eff: 34.97% Bkg: 0.00 cpm MDA: 5.17 dpm | | | | Eff: 34.25% Bkg: 1.70 cpm MDA: 19.73 dpm | | | |
| SN | RPT | ID | COUNTS | NET CPM | DPM | LIMITS | COUNTS | NET CPM | DPM | LIMITS | DATE | TIME |
| 001 | 00 | 1 | 0 | 0.00 | 0.00 | | 4 | 0.97 | 2.82 | | 08-24-2001 | 14:26:46 |
| 002 | 00 | 2 | 0 | 0.00 | 0.00 | | 6 | 2.30 | 6.72 | | 08-24-2001 | 14:28:46 |

Performed By: [signature] Date: 8/24/01

Reviewed By: [signature] Date: 8/24/01

FINAL SURVEY 01D05 [Z] PIN 11
PIC IPC9025 Z16712

| | | | ALPHA | | | | BETA | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Eff: 34.97% Bkg: 0.00 cpm MDA: 5.17 dpm | | | | Eff: 34.25% Bkg: 1.70 cpm MDA: 19.73 dpm | | | |
| SN | RPT | ID | COUNTS | NET CPM | DPM | LIMITS | COUNTS | NET CPM | DPM | LIMITS | DATE | TIME |
| 001 | 00 | 1 | 0 | 0.00 | 0.00 | | 7 | 2.97 | 8.66 | | 08-24-2001 | 14:44:02 |
| 002 | 00 | 2 | 0 | 0.00 | 0.00 | | 2 | -0.37 | -1.07 | | 08-24-2001 | 14:46:02 |

Performed By: [signature] Date: 8/24/01

Reviewed By: [signature] Date: 8/25/01

FINAL SURVEY 01D06 [Z] PIN 11
PIC IPC9025 216712

| | | | ALPHA | | | | BETA | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Eff: 34.97% Bkg: 0.00 cpm MDA: 5.17 dpm | | | | Eff: 34.25% Bkg: 1.70 cpm MDA: 19.73 dpm | | | | | |
| SN | RPT | ID | COUNTS | NET CPM | DPM | LIMITS | COUNTS | NET CPM | DPM | LIMITS | DATE | TIME |
| 001 | 00 | 1 | 0 | 0.00 | 0.00 | | 0 | -1.70 | -4.96 | | 08-24-2001 | 14:50:14 |
| 002 | 00 | 2 | 0 | 0.00 | 0.00 | | 6 | 2.30 | 6.72 | | 08-24-2001 | 14:52:13 |

Performed By: [signature] Date: 8/24/01

Reviewed By: [signature] Date: 8/25/01

FINAL SURVEY 01D07 [Z] PIN 11
PIC IPC9025 216712

| | | | ALPHA | | | | BETA | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Eff: 34.97% Bkg: 0.00 cpm MDA: 5.17 dpm | | | | Eff: 34.25% Bkg: 1.70 cpm MDA: 19.73 dpm | | | |
| SN | RPT | ID | COUNTS | NET CPM | DPM | LIMITS | COUNTS | NET CPM | DPM | LIMITS | DATE | TIME |
| 001 | 00 | 1 | 1 | 0.67 | 1.91 | | 0 | -1.90 | -5.54 | | 08-24-2001 | 14:59:22 |
| 002 | 00 | 2 | 0 | 0.00 | 0.00 | | 3 | 0.30 | 0.88 | | 08-24-2001 | 15:01:21 |

Performed By: [signature] Date: 8/24/01

Reviewed By: [signature] Date: 8/25/01

FINAL SURVEY 01D08 [Z] PIN 11
PIC IPC9025 216712

| | | | ALPHA | | | | BETA | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Eff: 34.97% Bkg: 0.00 cpm MDA: 5.17 dpm | | | | Eff: 34.25% Bkg: 1.70 cpm MDA: 19.73 dpm | | | |
| SN | RPT | ID | COUNTS | NET CPM | DPM | LIMITS | COUNTS | NET CPM | DPM | LIMITS | DATE | TIME |
| 001 | 00 | 1 | 1 | 0.67 | 1.91 | | B | 3.43 | 10.03 | | 08-24-2001 | 15:04:25 |
| 002 | 00 | 2 | 0 | 0.00 | 0.00 | | 0 | -1.70 | -4.96 | | 08-24-2001 | 15:06:24 |

Performed By: [signature] Date: 8/24/01

Reviewed By: [signature] Date: 8/25/01

FINAL SURVEY 01D09 [Z] PIN 11
PIC IPC9025 216712

| | | | ALPHA Eff: 34.97% Bkg: 0.00 cpm MDA: 5.17 dpm | | | | BETA Eff: 34.25% Bkg: 1.70 cpm MDA: 19.73 dpm | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SN | RPT | ID | COUNTS | NET CPM | DPM | LIMITS | COUNTS | NET CPM | DPM | LIMITS | DATE | TIME |
| 001 | 00 | 1 | 1 | 0.67 | 1.91 | | 1 | -1.23 | -3.60 | | 08-24-2001 | 15:17:02 |
| 002 | 00 | 2 | 0 | 0.00 | 0.00 | | 8 | 3.63 | 10.61 | | 08-24-2001 | 15:19:01 |

Performed By: _____ Date: 8/24/01

Reviewed By: _____ Date: 8/25/01

FINAL SURVEY 01D10 [Z] PIN 11
PIC IPC9025 216712

| | | | ALPHA | | | | BETA | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Eff: 34.97% Bkg: 0.00 cpm MDA: 5.17 dpm | | | | Eff: 34.25% Bkg: 1.70 cpm MDA: 19.73 dpm | | | | | |
| SN | RPT | ID | COUNTS | NET CPM | DPM | LIMITS | COUNTS | NET CPM | DPM | LIMITS | DATE | TIME |
| 001 | 00 | 1 | 0 | 0.00 | 0.00 | | 3 | 0.30 | 0.88 | | 08-24-2001 | 15:38:43 |
| 002 | 00 | 2 | 0 | 0.00 | 0.00 | | 7 | 2.97 | 8.66 | | 08-24-2001 | 15:40:42 |

Performed By: _____ Date: 8/24/01

Reviewed By: _____ Date: 8/25/01

# Section 5

# H-3 Removable Beta Contamination Summary Data Table PGK 11 (including lab reports)

# Section 5

# Package 11
# H-3 Removable Beta Contamination
# Summary Data Table (including lab reports)

H-3 Removable Beta Contamination Summary Data Table PKG 11

| Carrier No. | CPM | Count Time (sec) | Sample Area ($cm^2$) | Surface | Row | Location | Beta Efficiency | Beta Background (cpm) | Activity ($dpm/100cm^2$) | Net Activity ($dpm/100cm^2$) | MDA ($dpm/100cm^2$) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| 1 | 77 | 60 | 100 | 01D01 | ZZZZZ | 00001 | 0.165 | 0.00 | 466 | 466 | 16 |
| 2 | 70 | 60 | 100 | 01D01 | ZZZZZ | 00002 | 0.145 | 0.00 | 484 | 484 | 19 |
| 3 | 151 | 60 | 100 | 01D02 | ZZZZZ | 00001 | 0.338 | 0.00 | 447 | 447 | 8 |
| 4 | 129 | 60 | 100 | 01D02 | ZZZZZ | 00002 | 0.344 | 0.00 | 376 | 376 | 8 |
| 5 | 75 | 60 | 100 | 01D03 | ZZZZZ | 00001 | 0.226 | 0.00 | 331 | 331 | 12 |
| 6 | 59 | 60 | 100 | 01D03 | ZZZZZ | 00002 | 0.175 | 0.00 | 337 | 337 | 15 |
| 7 | 61 | 60 | 100 | 01D04 | ZZZZZ | 00001 | 0.226 | 0.00 | 269 | 269 | 12 |
| 8 | 54 | 60 | 100 | 01D04 | ZZZZZ | 00002 | 0.145 | 0.00 | 374 | 374 | 19 |
| 9 | 35 | 60 | 100 | 01D05 | ZZZZZ | 00001 | 0.087 | 0.00 | 403 | 403 | 31 |
| 10 | 48 | 60 | 100 | 01D05 | ZZZZZ | 00002 | 0.119 | 0.00 | 403 | 403 | 23 |
| 1 | 49 | 60 | 100 | 01D06 | ZZZZZ | 00001 | 0.109 | 0.00 | 452 | 452 | 25 |
| 2 | 46 | 60 | 100 | 01D06 | ZZZZZ | 00002 | 0.212 | 0.00 | 217 | 217 | 13 |
| 3 | 36 | 60 | 100 | 01D07 | ZZZZZ | 00001 | 0.047 | 0.00 | 773 | 773 | 58 |
| 4 | 47 | 60 | 100 | 01D07 | ZZZZZ | 00002 | 0.067 | 0.00 | 698 | 698 | 40 |
| 5 | 49 | 60 | 100 | 01D08 | ZZZZZ | 00001 | 0.101 | 0.00 | 484 | 484 | 27 |
| 6 | 38 | 60 | 100 | 01D08 | ZZZZZ | 00002 | 0.050 | 0.00 | 764 | 764 | 54 |
| 7 | 82 | 60 | 100 | 01D09 | ZZZZZ | 00001 | 0.222 | 0.00 | 370 | 370 | 12 |
| 8 | 65 | 60 | 100 | 01D09 | ZZZZZ | 00002 | 0.217 | 0.00 | 300 | 300 | 12 |
| 9 | 71 | 60 | 100 | 01D10 | ZZZZZ | 00001 | 0.300 | 0.00 | 237 | 237 | 9 |
| 10 | 64 | 60 | 100 | 01D10 | ZZZZZ | 00002 | 0.294 | 0.00 | 218 | 218 | 9 |
| | | | | | | | | | | | |
| | | | | | | | | | # Measurements | 20 | |
| | | | | | | | | | Average | 420 | |
| | | | | | | | | | Maximum | 773 | |
| | | | | | | | | | STD DEV | 159 | |
| | | | | | | | | | 95% CL on Mean | 501 | |



068

R: 1 ID:SMEARS PRESET TIME: 1.00 FRI 24 AUG 2001 14:03
SAMPLE REPEAT: 1 CYCLE REPEAT: 1 SCR:N RS232:N
H#: 1 AQC:N QCF:N RCM:N 2 PHASE MONITOR:N
CHANNEL 1-LL: 0 UL: 400 2SIGMA: 2.00 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0
CHANNEL 2-LL: 0 UL: 670 2SIGMA: 2.00 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0
CHANNEL 3-LL: 0 UL:1000 2SIGMA: 2.00 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0

SINGLE LABEL DPM, SET UP ON SUN 24 JUN 2001 16:19
UNKNOWN ID:SMEARS UNKNOWN REPLICATES: 1 Package #11
UNKNOWN NORM FACTOR:Q 1.00000 UNKNOWN UNITS:DPM
QUENCH MODE:H CALCULATE COEFF:N HALF LIFE(DAYS):N
QUENCH COEFF A: 4.328559 B:-0.0051270 C:-0.0000122 D:-0.0000000212
STANDARD ID:
QUENCH LIMITS LOW:90.00 HIGH:390.0

| SAM | POS | CH | CPM | 2SIG% | TIME | EL TIME | AVG H# | ERR |
|---|---|---|---|---|---|---|---|---|
| 1 | 8- 1 | 1 | 77.00 | 22.79 | 1.00 | 1.32 | 187.0 | |
| | | 2 | 110.00 | 19.07 | | | | |
| | | 3 | 134.00 | 17.28 | | | | |
| | | | | | %EFF:16.52 | ISO1 DPM | :466.1066 | |
| 2 | 8- 2 | 1 | 70.00 | 23.90 | 1.00 | 2.82 | 198.0 | |
| | | 2 | 111.00 | 18.98 | | | | |
| | | 3 | 129.00 | 17.61 | | | | |
| | | | | | %EFF:14.45 | ISO1 DPM | :484.4962 | |
| 3 | 8- 3 | 1 | 151.00 | 16.28 | 1.00 | 4.32 | 118.0 | |
| | | 2 | 171.00 | 15.29 | | | | |
| | | 3 | 196.00 | 14.29 | | | | |
| | | | | | %EFF:33.75 | ISO1 DPM | :447.4558 | |
| 4 | 8- 4 | 1 | 129.00 | 17.61 | 1.00 | 5.83 | 116.0 | |
| | | 2 | 162.00 | 15.71 | | | | |
| | | 3 | 190.00 | 14.51 | | | | |
| | | | | | %EFF:34.35 | ISO1 DPM | :375.5551 | |
| 5 | 8- 5 | 1 | 75.00 | 23.09 | 1.00 | 7.33 | 159.0 | |
| | | 2 | 101.00 | 19.90 | | | | |
| | | 3 | 124.00 | 17.96 | | | | |
| | | | | | %EFF:22.64 | ISO1 DPM | :331.2707 | |
| 6 | 8- 6 | 1 | 59.00 | 26.04 | 1.00 | 8.82 | 182.0 | |
| | | 2 | 102.00 | 19.80 | | | | |
| | | 3 | 123.00 | 18.03 | | | | |
| | | | | | %EFF:17.52 | ISO1 DPM | :336.6965 | |
| 7 | 8- 7 | 1 | 61.00 | 25.61 | 1.00 | 10.31 | 159.0 | |
| | | 2 | 94.00 | 20.63 | | | | |
| | | 3 | 124.00 | 17.96 | | | | |
| | | | | | %EFF:22.64 | ISO1 DPM | :269.4335 | |
| 8 | 8- 8 | 1 | 54.00 | 27.22 | 1.00 | 11.79 | 198.0 | |
| | | 2 | 84.00 | 21.82 | | | | |
| | | 3 | 105.00 | 19.52 | | | | |
| | | | | | %EFF:14.45 | ISO1 DPM | :373.7542 | |
| 9 | 8- 9 | 1 | 35.00 | 33.81 | 1.00 | 13.28 | 236.0 | |
| | | 2 | 81.00 | 22.22 | | | | |
| | | 3 | 98.00 | 20.20 | | | | |
| | | | | | %EFF:8.675 | ISO1 DPM | :403.4620 | |

Performed By: [signature] Date: 8/24/01
Reviewed By: [signature] Date: 8/25/01

| | POS | CH | CPM | 2SIG% | TIME | EL TIME | AVG H# | ERR |
|---|---|---|---|---|---|---|---|---|
| 10 | 8-10 | 1 | 48.00 | 28.87 | 1.00 | 14.78 | 213.0 | |
| | | 2 | 82.00 | 22.09 | | | | |
| | | 3 | 100.00 | 20.00 | | | | |

%EFF:11.92 ISO1 DPM :402.7175

Performed By: [signature] Date: 8/24/01

Reviewed By: [signature] Date: 8/25/01

R: 1 ID:SMEARS PRESET TIME: 1.00 FRI 24 AUG 2001 14:28
SAMPLE REPEAT: 1 CYCLE REPEAT: 1 SCR:N RS232:N
H#: 1 AQC:N QCF:N RCM:N 2 PHASE MONITOR:N
CHANNEL 1-LL: 0 UL: 400 2SIGMA: 2.00 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0
CHANNEL 2-LL: 0 UL: 670 2SIGMA: 2.00 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0
CHANNEL 3-LL: 0 UL:1000 2SIGMA: 2.00 BKG SUB: 0.00 BKG 2SIG: 0.00 LSR: 0

SINGLE LABEL DPM, SET UP ON SUN 24 JUN 2001 16:19
UNKNOWN ID:SMEARS UNKNOWN REPLICATES: 1
UNKNOWN NORM FACTOR:Q 1.00000 UNKNOWN UNITS:DPM
QUENCH MODE:H CALCULATE COEFF:N HALF LIFE(DAYS):N
QUENCH COEFF A: 4.328559 B:-0.0051270 C:-0.0000122 D:-0.0000000212
STANDARD ID:
QUENCH LIMITS LOW:90.00 HIGH:390.0

| SAM | POS | CH | CPM | 2SIG% | TIME | EL TIME | AVG H# | ERR |
|---|---|---|---|---|---|---|---|---|
| 1 | 8-11 | 1 | 49.00 | 28.57 | 1.00 | 1.32 | 220.0 | |
| | | 2 | 84.00 | 21.82 | | | | |
| | | 3 | 96.00 | 20.41 | | | | |
| | | | | | %EFF:10.85 | ISO1 DPM | :451.5089 | |
| 2 | 8-12 | 1 | 46.00 | 29.49 | 1.00 | 2.81 | 165.0 | |
| | | 2 | 80.00 | 22.36 | | | | |
| | | 3 | 99.00 | 20.10 | | | | |
| | | | | | %EFF:21.23 | ISO1 DPM | :216.7155 | |
| 3 | 2- 1 | 1 | 36.00 | 33.33 | 1.00 | 4.36 | 276.0 | |
| | | 2 | 68.00 | 24.25 | | | | |
| | | 3 | 83.00 | 21.95 | | | | |
| | | | | | %EFF:4.657 | ISO1 DPM | :772.9797 | |
| 4 | 2- 2 | 1 | 47.00 | 29.17 | 1.00 | 5.85 | 253.0 | |
| | | 2 | 89.00 | 21.20 | | | | |
| | | 3 | 102.00 | 19.80 | | | | |
| | | | | | %EFF:6.734 | ISO1 DPM | :697.9291 | |
| 5 | 2- 3 | 1 | 49.00 | 28.57 | 1.00 | 7.34 | 225.0 | |
| | | 2 | 94.00 | 20.63 | | | | |
| | | 3 | 107.00 | 19.33 | | | | |
| | | | | | %EFF:10.13 | ISO1 DPM | :483.5285 | |
| 6 | 2- 4 | 1 | 38.00 | 32.44 | 1.00 | 8.83 | 272.0 | |
| | | 2 | 70.00 | 23.90 | | | | |
| | | 3 | 83.00 | 21.95 | | | | |
| | | | | | %EFF:4.977 | ISO1 DPM | :763.5457 | |
| 7 | 2- 5 | 1 | 82.00 | 22.09 | 1.00 | 10.33 | 161.0 | |
| | | 2 | 115.00 | 18.65 | | | | |
| | | 3 | 146.00 | 16.55 | | | | |
| | | | | | %EFF:22.16 | ISO1 DPM | :369.9950 | |
| 8 | 2- 6 | 1 | 65.00 | 24.81 | 1.00 | 11.82 | 163.0 | |
| | | 2 | 92.00 | 20.85 | | | | |
| | | 3 | 116.00 | 18.57 | | | | |
| | | | | | %EFF:21.69 | ISO1 DPM | :299.6602 | |
| 9 | 2- 7 | 1 | 71.00 | 23.74 | 1.00 | 13.32 | 131.0 | |
| | | 2 | 99.00 | 20.10 | | | | |
| | | 3 | 131.00 | 17.47 | | | | |
| | | | | | %EFF:29.96 | ISO1 DPM | :236.9748 | |

Performed By: [signature] Date: 8/24/01
Reviewed By: [signature] Date: 8/25/01

| POS | CH | CPM | 2SIG% | TIME | EL TIME | AVG H# | ERR |
|---|---|---|---|---|---|---|---|
| 10 | 2- 8 1 | 64.00 | 25.00 | 1.00 | 14.81 | 133.0 | |
| | 2 | 94.00 | 20.63 | | | | |
| | 3 | 118.00 | 18.41 | | | | |

%EFF:29.40 ISO1 DPM :217.6891

Performed By: [signature] Date: 8/24/01

Reviewed By: [signature] Date: 8/25/01