Draft

ORNL WORK PLAN

Operations, Maintenance and Services

Work Plan Name / Rev: ARGOS INSTALL / 0

44637

WORK SCOPE/DESCRIPTION	
Requester (Name/Badge/Division):	Combs, Jason / 00969291 / X072
Location of work (Bldg/Rm/Other):	3025E / EL220 / The work will be performed in various buildings.
Work Plan Title:	Installation/Removal of personnel contamination monitors
Description of Service/Work Needed: This plan covers the installation/removal of personnel contamination monitors. The work will take place within multiple facilities. Includes initial setup and calibration of the Canberra Argos-5B.	
Charge Number, if required:	
Work Plan Grade/Worktype:	0 / 0
Author (Name/Badge):	Combs, Jason / 00969291
File Attachments:	

Badge	Name	Attachment Desc	File Name
00969291	Combs, Jason	WI-776 Argos Calibration	WI-776 Canberra Argos Contamination Monitor Calibration.pdf

INSTRUCTIONS
Prerequisites/Precautions: - Assure applicable/appropriate access and training requirements are identified and adhered to. - If any of the above were answered yes, then initiate a USQD or USQD Screening Worksheet in accordance with Unreviewed Safety Question (USQ) Process for Nuclear and Facility Safety
Directions:
Post Work Testing: - Determine post-work testing requirements and acceptance criteria.
Closeout: - Include appropriate sections of vendor manual in package/plan.

JOB HAZARD EVALUATION	
HAZARDS	PERMITS / CONTROLS
Radiological Work	

DOCUMENTATION REVIEW AUTHORIZATION (Approvals are certification of hazards assessment)		
Reviewer/Approver Roles	Signature	Date
Author	Combs, Jason	
Work Package Concurrence		
Facility Manager		
Operations Supervisor		
Facility Manager Approval To Start Work		
Facility Manager		
Work Start Authorization		
Task Leader		
Work Acknowledged Complete		
Task Leader		

Worker Feedback:

Draft

ORNL WORK PLAN

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PRE-JOB SAFETY REVIEW GUIDE

ID: 44637

Scope of Work: Review work package/plan to ensure all participants understand the work activity.

Hazards: Review the hazards identified in Job Hazard Evaluation (JHE) / work plan (IOP).

- Since the work package / plan was written: 1) Have conditions changed? 2) Are there new hazards? Refer to Field Notes and Focus Areas.

Hazard Controls / Permits: Review:

- Written permits for the work activity.
- Precautions, step warnings, Hold Points ...
- Personal Protective Equipment (PPE)
- Work instructions for information - e.g., steps where hazards are introduced.
- ORNL subject area requirements - e.g., non-permit hazard controls.

Performing Work:

- Discuss group/individual responsibilities for safe & effective work.
- Follow work instructions & safety procedures.
- Availability/location of materials, tools, etc.
- Any previous experiences / lessons learned?
- Response if work cannot be performed as planned.
- What is the worst thing that could happen?
- Are there *Potential error traps* with the job? → →
- Take a minute before: work start & leaving work area.
- Work Hand-off / Turnover - workers & Task Leader

→ Potential Error Traps:

- Time pressures
- Distractive environment
- High workload
- First time evolution
- First day back
- Vague guidance
- Over confidence
- Imprecise communications
- Work stress

Abnormal Situation Response:

- *Stop Work*: Observe an unsafe act, activity or condition that creates an imminent danger.
- *Emergency Response*: Discuss egress paths or other responses if problems are encountered.

Field Notes and Focus Areas: (Use this area as a work space to record notes related to new hazards identified in the field or changed conditions. Record feedback in work package/plan information systems.)

By signing below, I am indicating that I have been briefed on the potential hazards associated with completing this job.

Signature / Badge	Date	Signature / Badge	Date

Work Instruction **776** Revision **0** Issue Date: **02/16/2011**

Title: **Canberra Argos Personnel Contamination Monitor Calibration**

A hard copy of this document is valid only until the document revision number has changed on the Web. The hard copy should be dated and signed the day it is printed. If you continue working from the hard copy, you should verify its accuracy periodically on the Web.

Date Printed: _____ Verifier: _____

I. Purpose

This procedure provides the necessary instructions to calibrate the Canberra Argos Model 5AB Personnel Contamination Monitor (PCM).

II. Scope and Limitations

This procedure applies to the initial, routine, and post repair calibration of Argos PCMs by Radiological Protection Instrumentation Calibration Program (RPI) personnel.

III. Definitions and Acronyms

A. RDA: Reliably Detectable Activity denotes the entered alarm point in disintegrations per minute.

B. See Reference A, Glossary for Instrument Calibration.

IV. General Information

The Argos PCM monitors both Alpha and Beta on each detector.

This procedure is limited to routine set-up and calibrations. The Argos instrument has many features and settings which may be applied to enable various functions requested by the end user, such as radon rejection. The setup parameters may be modified at the direction of the RPI Program Lead or designated alternate.

See Reference B, Canberra Argos-5AB User's Manual, as necessary.

V. Materials, Equipment, and Supplies

A. Argos keys.

B. Large-area (100 cm^2) NIST-traceable ^{137}Cs beta-gamma calibration source. Activity should be 30k – 600k dpm.

C. Large-area (100 or 150 cm^2) NIST-traceable ^{241}Am or ^{239}Pu alpha calibration source Activity range should be 5k to 30k dpm.

D. Source holder.

E. Keyboard, monitor, and USB drive.

VI. Responsibilities

RPI Personnel are responsible for performing this procedure.

VII. Procedure

A. Initial Installation

1. If this unit is in service, proceed to Section B.

   a) Adjust the P-10 cylinder pressure regulator and the 4 instrument rotometers to the minimum position.

   b) Open the valve on the P-10 cylinder.

CAUTION
Never increase the pressure regulator flow above 2 psi, to avoid damaging the detectors.

   c) Slowly set the regulator outlet pressure to 2 psig.

   d) Adjust each of the inlet flow rotometers to 50 cc/minute.

   e) Purge at this rate for several hours.

   f) Reduce the flow rate to between 10 and 20 cc/minute for normal operation. The outlet flow should be at least half of the inlet flow.

2. Attached a remote monitor and key board to the on board CPU of the Argos.

3. Launch the Argos software from the “Monitor” icon on the desktop.

NOTE

Each page of the software has an instructional menu describing the keystrokes needed to accomplish tasks on that page.

4. For initial setup, see Attachment A and input the setup parameters.

5. To Add Calibration Source information:

   a) Press **Esc** to access the "Service Menu," then press **F3** twice to access the "Setup Detection Zones Menu."

   b) Press **F9** to select "Edit Calibration Source List."

   c) Press **F1** to "Add Source to List."

   d) Input the Source ID.

   e) Use the **+/-** keys to select the source type.

   f) Input the Source Dimension.

   g) Use the **+/-** keys to enter Certificate year, month, and day.

   h) Use the **+/-** keys to select the number of "Isotopes in Source," usually one.

   i) Use the **+/-** keys to select the Isotope.

   j) Press **Ctrl+E** to edit the Certificate Activity, and then click on **OK**.

6. Press **Esc** to save changes and exit.

B. <u>As-Found</u>

1. Attached a remote monitor and key board to the on board CPU of the Argos.

2. Launch the Argos software from the "Monitor" icon on the desktop.

3. Insert the USB drive into the on-board computer USB port.

4. Press **Esc** to access the "Service Menu," and then **F6** to access the "Print Menu."

5. Press **F7** "All Setup Values" and **Ctrl+F2.** Select the external USB drive from the dropdown menu and save the Setup Values to your USB drive as the As-Found data.

6. Press **Esc** twice to return to the "Service Menu."

C. Calibration

1. From the "Service Menu" Press **F3** to access the Setup Menu.

2. Press **F3** to access "Detection Zones" menu.

3. Press **F3** to access the "Calibrations" menu.

NOTE

"Calibration Collection" efficiencies may be determined by one of two methods: Auto collection is the preferred method when one technician is calibrating the instrument, as the detector selection is controlled automatically through the software program. With the manual method, "Do Calibration Collection", the technician must select each detector and begin the source count manually.

The Auto Calibration Collection can be stopped at any time by pressing Esc. Page to any detector to recount that detector, either manually (Do Calibration Collection), or by restarting the Auto mode.

4. To perform Auto Calibration:

   a) Select **ALT+2** to access the "Calibration Alpha Foot Detector 1a."

   b) Use the **+/-** keys to select the appropriate calibration source.

   c) Input the "Auto Sequence Extra Time", using the **+/-** keys (7 seconds is recommended).

   d) Press **Shift+F1** for "Auto Calibration Collection."

NOTE

All Alpha Efficiencies are determined at Contact (0.5 cm for the Foot detectors and 0.25 cm for all others) with the detectors.

e) Quickly position the Alpha calibration source **on contact** with the grid of the first detector, 1a.

NOTE
If the counting process encounters a problem, the voice command will say, "Retest" at the end of the collection time. Check for proper source placement for the automatic recount.

f) The voice command will count down the collection time, and then say "Next."

g) Move the source in place over the next detector within the set time.

h) Repeat steps **e** through **g** for each detector in order from 1a to 25c.

NOTE
The Beta efficiencies are determined at the following distances:

Body>	**1.5 inches**	**(3.75 cm)**
Head>	**1.5 inches**	**(3.75 cm)**
Foot>	**Contact**	**(0.5 cm)**
Hand>	**Contact**	**(0.25 cm)**
Shoe>	**Contact**	**(0.25 cm)**

i) To perform the Beta detector efficiencies, repeat section **VII.C.4**, selecting **Alt+1** to access the "Calibration Beta Foot Detector 1a," and using the Beta calibration source.

5. To perform manual calibration:

a) Position the source on the first detector, 1a.

b) Press **F1** for "Do Calibration Collection."

c) The voice command will count down the collection time, and then say "Done."

d) Press **Page Down** to select the next detector.

e) Move the source in place over the next detector.

f) Repeat steps **b** through **e** for each detector in order from 1a to 25c.

6. Press **Esc** three times to return to the “Service Menu.”

7. Select **F6** “Print Menu.”

8. Select **F3** “Calibration.”

9. Insert the USB drive into the on-board computer USB port.

10. Press **Ctrl+F2** and save the calibration file to your USB drive.

11. Press **Esc** to return to the “Print Menu,” and then **F4** “Calibration Data.”

12. Press **Ctrl+F2** and save the calibration data file to your USB drive, as the As-Left data.

13. Press **Esc** twice to return to the “Service Menu,” and **F1** to “Place in Normal Service.”

14. Disconnect the remote monitor and keyboard, close and lock the on-board computer compartment.

15. Step into the PCM and check for proper operation.

16. Affix a completed calibration sticker to the instrument.

17. Notify facility personnel that the calibration is complete and the Argos has been returned to service.

14. Print As-Found and As-Left data files, and mark as As-Found and As-Left.

15. Record the instrument ID information and location on the printouts.

16. Sign and date the printouts, and handle in accordance with Reference C.

17. Notify facility personnel that the calibration is complete and the Argos has been returned to service.

VIII. Applicable Standards

Occupational Radiation Protection, 10CFR835, Code of Federal Regulations.

IX. References

A. Glossary for Instrument Calibration, RPI Work Instruction WI-205.

B. Argos, Sirius, Gem, and Cronos Operations Manual.

C. Calibration Records and Document Management, RPI SOP CAL-115.

X. Required Records

Handle calibration printouts in accordance with Reference C.

XI. Administration

Interpretation and administration of this procedure are responsibilities of the RPI Program Lead or designated alternate.

XII. Appendix

Canberra Argos-5AB Setup Values

Appendix A
Canberra Argos-5AB Setup Values
(page 1 of 16)

Setup Values 10:44:16 Tuesday 15 February 2011
CANBERRA Argos-5AB Version 7.14.2 (100420)
Serial Number:1008-218, X190238, 7920 upstairs

[F3 Setup] [F1 Common Values]

Monitor ID [XXXXXXXX]
Location ID [XXXXXXXX]
Serial Number [XXXXXXX]
Count Rate Units [cpm]
Activity Units [dpm]
Emission Rate Units [/min]
Alarm Calibration Type [Activity] (4π)
High Contamination Alarm [Disable]
Extend Count if Contaminated [YES]
Count Feet in 2 Steps [YES]
Count Head in 2 Steps [YES]

[F3 Setup] [F2 Wait Timeouts]

Initialize Background: Update [5] times
Background Collect Time [10] s
Background Average Period [300] s
Excessive Background in Service After [300] s
Low Background Minimum Average Period [20] s
Zero Count Period [3] s
Approach Sensor Reset Time [3] s
Occupied Sensor Hold Time [1] s
While Positioning [5] s
Monitor Time Minimum [20] s
Maximum [50] s
Contaminated Message Latch Time [3] s
Clean Message Latch Time [1] s
Position Reset Time [10] s
Repeat Voice Message Time [3] s
Alarm Test Result Latch Time [3] s
Not Complete Message Repeat Time [3] s

Not Complete Message Repeats [1]
Delay Before Position Message [1.5] s
Extend Count Time [10] s
Maximum Not in Position Time [30] s
Maximum Time between Background Updates [900] s

[F3 Setup] [F3 Detection Zones] [F1 Zone Configuration] [Beta]

Detector Section Alarm [Yes]
Sum Zone Intra Pair Alarm [Yes (but don't use for count time)]
Sum Zone Inter Pair Alarm [Yes (but don't use for count time)]
Sum Zone Triple Alarm [Yes (but don't use for count time)]
Sum Zone Quad Alarm [Yes (but don't use for count time)]
Valid Sum Zone Ratio [0.40]
Bkg False Alarm (K Alpha) [3.295]
Extend Confidence (K Beta 1) [1.050]
Alarm Confidence (K Beta 2) [1.050] 70.63 %
Allow Bkg Reset [YES]
Bkg Reset Level (K Delta) [4.000] 1:15787

[F3 Setup] [F3 Detection Zones] [F1 Zone Configuration] [Alpha]

Detector Section Alarm [Yes]
Sum Zone Intra Pair Alarm [Yes (but don't use for count time)]
Sum Zone Inter Pair Alarm [Yes (but don't use for count time)]
Sum Zone Triple Alarm [Yes (but don't use for count time)]
Sum Zone Quad Alarm [Yes (but don't use for count time)]
Valid Sum Zone Ratio [0.50]
Bkg False Alarm (K Alpha) [3.295]
Extend Confidence (K Beta 1) [1.050]
Alarm Confidence (K Beta 2) [1.050] 70.63 %
Allow Bkg Reset [YES]
Bkg Reset Level (K Delta) [5.000] 1:1744278

[F3 Setup] [F3 Detection Zones] [F2 Settings] [Typical Detector] [Beta]

Zone Alarm [Yes]
Self Shield Factor - Occupied [1.00]
- Detector Contamination Check [1.00]
- Alarm Test [1.00]
Alarm Activity [5000] dpm (4π)

Alarm Test Source [Lantern] Th-228 (α)
Source
Emission Rate [0] α/min
Activity [8000] dpm
Date [30-Sep-2010]
Dimension [3]
× [3] cm²
Expected Net Rate [1545] cpm
High Background Rate [6000] cpm
Excessive Background Rate [60.00E+03] cpm
Low Background Rate [150.0] cpm

[F3 Setup] [F3 Detection Zones] [F2 Settings] [Typical Detector] [Alpha]

Zone Alarm [Yes]
Self Shield Factor - Occupied [1.00]
- Detector Contamination Check [1.00]
- Alarm Test [1.00]
Alarm Activity [1000.] dpm (4π)
Alarm Test Source [Lantern] Th-228 (α)
Source
Emission Rate [0] α/min
Activity [8000] dpm
Date [30-Sep-2010]
Dimension [3]
× [3] cm²
Expected Net Rate [812.8] cpm
High Background Rate [100.0] cpm
Excessive Background Rate [1000.] cpm
Low Background Rate [0] cpm

[F3 Detection Zones] [F2 Settings] [Foot Detector Zone 1] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Foot Detector Zone 2] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Foot Detector Zone 3] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Foot Detector Zone 4] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Foot Detector Zone 5] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Foot Detector Zone 6] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Hand Detector Zone 61] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Hand Detector Zone 62] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Hand Detector Zone 63] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Hand Detector Zone 64] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Hand Detector Zone 65] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Hand Detector Zone 66] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Head Detector Zone 70] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Head Detector Zone 71] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Head Detector Zone 72] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Shoe Detector Zone 73] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Shoe Detector Zone 74] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Shoe Detector Zone 75] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Setup] [F3 Detection Zones] [F2 Settings] [Typical Intra Pair] [Beta]

Zone Alarm [Yes (but don't use for count time)]
Self Shield Factor - Occupied [1.00]
- Detector Contamination Check [1.00]
- Alarm Test [1.00]
Alarm Activity [5000] dpm (4π)
Alarm Test Source [Lantern] Th-228 (α)
Source
Emission Rate [0] α/min
Activity [8000] dpm
Date [30-Sep-2010]
Dimension [3]
× [3] cm²
Expected Net Rate [1878] cpm

[F3 Setup] [F3 Detection Zones] [F2 Settings] [Typical Intra Pair] [Alpha]

Zone Alarm [Yes (but don't use for count time)]
Self Shield Factor - Occupied [1.00]

- Detector Contamination Check [1.00]
  - Alarm Test [1.00]
    Alarm Activity [1000.] dpm (4π)
    Alarm Test Source [Lantern] Th-228 (α)
    Source
    Emission Rate [0] α/min
    Activity [8000] dpm
    Date [30-Sep-2010]
    Dimension [3]
    × [3] cm²
    Expected Net Rate [813.8] cpm

[F3 Detection Zones] [F2 Settings] [Foot Pair Zone 94] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Foot Pair Zone 95] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Foot Pair Zone 96] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Foot Pair Zone 97] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Hand Pair Zone 134] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Hand Pair Zone 135] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Hand Pair Zone 136] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Hand Pair Zone 137] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Head Pair Zone 140] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Head Pair Zone 141] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Shoe Pair Zone 142] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Detection Zones] [F2 Settings] [Shoe Pair Zone 143] [Alpha]

Alarm Activity [500.0] dpm (4π)

[F3 Setup] [F3 Detection Zones] [F2 Settings] [Typical Inter Pair] [Beta]

Zone Alarm [Yes (but don't use for count time)]
Self Shield Factor - Occupied [1.00]
- Detector Contamination Check [1.00]
- Alarm Test [1.00]
Alarm Activity [5000] dpm (4π)
Alarm Test Source [Lantern] Th-228 (α)
Source
Emission Rate [0] α/min
Activity [8000] dpm
Date [30-Sep-2010]
Dimension [3]
× [3] cm²
Expected Net Rate [1160] cpm

[F3 Setup] [F3 Detection Zones] [F2 Settings] [Typical Inter Pair] [Alpha]

Zone Alarm [Yes (but don't use for count time)]
Self Shield Factor - Occupied [1.00]
- Detector Contamination Check [1.00]
- Alarm Test [1.00]

Alarm Activity [1000.] dpm (4π)
Alarm Test Source [Lantern] Th-228 (α)
Source
Emission Rate [0] α/min
Activity [8000] dpm
Date [30-Sep-2010]
Dimension [3]
× [3] cm²
Expected Net Rate [980.2] cpm

[F3 Setup] [F3 Detection Zones] [F2 Settings] [Typical Quad] [Beta]

Zone Alarm [Yes (but don't use for count time)]
Self Shield Factor - Occupied [1.00]
- Detector Contamination Check [1.00]
- Alarm Test [1.00]
Alarm Activity [5000] dpm (4π)
Alarm Test Source [Lantern] Th-228 (α)
Source
Emission Rate [0] α/min
Activity [8000] dpm
Date [30-Sep-2010]
Dimension [3]
× [3] cm²
Expected Net Rate [1425] cpm

[F3 Setup] [F3 Detection Zones] [F2 Settings] [Typical Quad] [Alpha]

Zone Alarm [Yes (but don't use for count time)]
Self Shield Factor - Occupied [1.00]
- Detector Contamination Check [1.00]
- Alarm Test [1.00]
Alarm Activity [1000.] dpm (4π)
Alarm Test Source [Lantern] Th-228 (α)
Source
Emission Rate [0] α/min
Activity [8000] dpm
Date [30-Sep-2010]
Dimension [3]
× [3] cm²
Expected Net Rate [1124] cpm

[F3 Setup] [F3 Detection Zones] [Shift+F3 Calibration Settings]

Count Time Calculation
Count Time Minimum [20]
Maximum [20] s
Allowed Range ± [20.0] %
Confidence K Beta [1.960] 95.00 %
Automatic Sequence
Wait between Detectors [5] s
Maximum Retests Allowed [3]
Wait between Retests [3] s

[F3 Setup] [F3 Detection Zones] [F3 Calibration] [Typical Detector] [Beta]

Calibration Source [FY854] Cs-137 (β)
Source
Emission Rate [0] β/min
Activity [268.8E+03] dpm
Date [27-Mar-1998]
Dimension [10]
× [10] cm²
Calibration Distance [3.75] cm
Detector Dimension [16]
× [12] cm²
Area of Source Visible [100.00] %

[F3 Detection Zones] [F3 Calibration] [Foot Detector Zone 1] [Beta]

Calibration Source [SU824] Tc-99 (β)
Source
Emission Rate [0] β/min
Activity [60.00E+03] dpm
Date [07-Oct-2010]
Dimension [15]
× [6.8] cm²
Calibration Distance [0.5] cm

[F3 Detection Zones] [F3 Calibration] [Foot Detector Zone 2] [Beta]

Calibration Distance [0.5] cm

[F3 Detection Zones] [F3 Calibration] [Foot Detector Zone 3] [Beta]

Calibration Distance [0.5] cm

[F3 Detection Zones] [F3 Calibration] [Foot Detector Zone 4] [Beta]

Calibration Distance [0.5] cm

[F3 Detection Zones] [F3 Calibration] [Foot Detector Zone 5] [Beta]

Calibration Distance [0.5] cm

[F3 Detection Zones] [F3 Calibration] [Foot Detector Zone 6] [Beta]

Calibration Distance [0.5] cm

[F3 Detection Zones] [F3 Calibration] [Body Detector Zone 25] [Beta]

Calibration Source [SU824] Tc-99 (β)
Source
Emission Rate [0] β/min
Activity [60.00E+03] dpm
Date [07-Oct-2010]
Dimension [15]
× [6.8] cm²

[F3 Detection Zones] [F3 Calibration] [Body Detector Zone 26] [Beta]

Calibration Source [SU824] Tc-99 (β)
Source
Emission Rate [0] β/min
Activity [60.00E+03] dpm
Date [07-Oct-2010]
Dimension [15]
× [6.8] cm²

[F3 Detection Zones] [F3 Calibration] [Body Detector Zone 27] [Beta]

Calibration Source [SU824] Tc-99 (β)
Source

Emission Rate [0] β/min
Activity [60.00E+03] dpm
Date [07-Oct-2010]
Dimension [15]
× [6.8] cm²

[F3 Detection Zones] [F3 Calibration] [Hand Detector Zone 61] [Beta]

Calibration Distance [0.25] cm

[F3 Detection Zones] [F3 Calibration] [Hand Detector Zone 62] [Beta]

Calibration Distance [0.25] cm

[F3 Detection Zones] [F3 Calibration] [Hand Detector Zone 63] [Beta]

Calibration Distance [0.25] cm

[F3 Detection Zones] [F3 Calibration] [Hand Detector Zone 64] [Beta]

Calibration Distance [0.25] cm

[F3 Detection Zones] [F3 Calibration] [Hand Detector Zone 65] [Beta]

Calibration Distance [0.25] cm

[F3 Detection Zones] [F3 Calibration] [Hand Detector Zone 66] [Beta]

Calibration Distance [0.25] cm

[F3 Detection Zones] [F3 Calibration] [Shoe Detector Zone 73] [Beta]

Calibration Distance [0.25] cm

[F3 Detection Zones] [F3 Calibration] [Shoe Detector Zone 74] [Beta]

Calibration Distance [0.25] cm

[F3 Detection Zones] [F3 Calibration] [Shoe Detector Zone 75] [Beta]

Calibration Distance [0.25] cm

[F3 Setup] [F3 Detection Zones] [F3 Calibration] [Typical Detector] [Alpha]

Calibration Source [AMRB17327] Am-241 (α)
Source
Emission Rate [0] α/min
Activity [60.60E+03] dpm
Date [31-May-2010]
Dimension [15]
× [7] cm²
Calibration Distance [0.25] cm
Detector Dimension [16]
× [12] cm²
Area of Source Visible [100.00] %

[F3 Setup] [F3 Detection Zones] [F3 Calibration] [Typical Intra Pair] [Beta]

Calibration Source [FY854] Cs-137 (β)
Source
Emission Rate [0] β/min
Activity [268.8E+03] dpm
Date [27-Mar-1998]
Dimension [10]
× [10] cm²
Calibration Distance [3.75] cm
Detector Dimension [0]
× [0] cm²
Area of Source Visible [100.00] %

[F3 Detection Zones] [F3 Calibration] [Foot Pair Zone 94] [Beta]

Calibration Distance [0.5] cm

[F3 Detection Zones] [F3 Calibration] [Foot Pair Zone 95] [Beta]

Calibration Distance [0.5] cm

[F3 Detection Zones] [F3 Calibration] [Foot Pair Zone 96] [Beta]

Calibration Distance [0.5] cm

[F3 Detection Zones] [F3 Calibration] [Foot Pair Zone 97] [Beta]

Calibration Distance [0.5] cm

[F3 Detection Zones] [F3 Calibration] [Hand Pair Zone 134] [Beta]

Calibration Distance [0.25] cm

[F3 Detection Zones] [F3 Calibration] [Hand Pair Zone 135] [Beta]

Calibration Distance [0.25] cm

[F3 Detection Zones] [F3 Calibration] [Hand Pair Zone 136] [Beta]

Calibration Distance [0.25] cm

[F3 Detection Zones] [F3 Calibration] [Hand Pair Zone 137] [Beta]

Calibration Distance [0.25] cm

[F3 Detection Zones] [F3 Calibration] [Shoe Pair Zone 142] [Beta]

Calibration Distance [0.25] cm

[F3 Detection Zones] [F3 Calibration] [Shoe Pair Zone 143] [Beta]

Calibration Distance [0.25] cm

[F3 Setup] [F3 Detection Zones] [F3 Calibration] [Typical Intra Pair] [Alpha]

Calibration Source [AMRB17327] Am-241 (α)
Source
Emission Rate [0] α/min
Activity [60.60E+03] dpm
Date [31-May-2010]
Dimension [15]
× [7] cm²
Calibration Distance [0.25] cm
Detector Dimension [0]
× [0] cm²
Area of Source Visible [100.00] %

[F3 Setup] [F3 Detection Zones] [F3 Calibration] [Typical Inter Pair] [Beta]

Calibration Source [FY854] Cs-137 (β)
Source
Emission Rate [0] β/min
Activity [268.8E+03] dpm
Date [27-Mar-1998]
Dimension [10]
× [10] cm²
Calibration Distance [3.75] cm
Detector Dimension [0]
× [0] cm²
Area of Source Visible [100.00] %

[F3 Setup] [F3 Detection Zones] [F3 Calibration] [Typical Inter Pair] [Alpha]

Calibration Source [AMRB17327] Am-241 (α)
Source
Emission Rate [0] α/min
Activity [60.60E+03] dpm
Date [31-May-2010]
Dimension [15]
× [7] cm²
Calibration Distance [0.25] cm
Detector Dimension [0]
× [0] cm²
Area of Source Visible [100.00] %

[F3 Setup] [F3 Detection Zones] [F3 Calibration] [Typical Quad] [Beta]

Calibration Source [FY854] Cs-137 (β)
Source
Emission Rate [0] β/min
Activity [268.8E+03] dpm
Date [27-Mar-1998]
Dimension [10]
× [10] cm²
Calibration Distance [3.75] cm
Detector Dimension [0]
× [0] cm²

Area of Source Visible [100.00] %

[F3 Setup] [F3 Detection Zones] [F3 Calibration] [Typical Quad] [Alpha]

Calibration Source [AMRB17327] Am-241 (α)
Source
Emission Rate [0] α/min
Activity [60.60E+03] dpm
Date [31-May-2010]
Dimension [15]
× [7] cm²
Calibration Distance [0.25] cm
Detector Dimension [0]
× [0] cm²
Area of Source Visible [100.00] %

[F3 Setup] [F3 Detection Zones] [F5 Group Settings Typical] [Beta]

Alarm Activity [5000] dpm (4π)
Alarm Test Source [Lantern] Th-228 (α)
Source
Emission Rate [0] α/min
Activity [8000] dpm
Date [30-Sep-2010]
Dimension [3]
× [3] cm²
High Background Rate [6000] cpm
Excessive Background Rate [60.00E+03] cpm
Low Background Rate [150.0] cpm
Calibration Source [FY854] Cs-137 (β)
Source
Emission Rate [0] β/min
Activity [268.8E+03] dpm
Date [27-Mar-1998]
Dimension [10]
× [10] cm²
Calibration Distance [0.25] cm

[F3 Setup] [F3 Detection Zones] [F5 Group Settings] [Beta Foot]

Calibration Distance [0.5] cm

[F3 Setup] [F3 Detection Zones] [F5 Group Settings] [Beta Body]

Calibration Distance [3.75] cm

[F3 Setup] [F3 Detection Zones] [F5 Group Settings] [Beta Head]

Calibration Distance [3.75] cm

[F3 Setup] [F3 Detection Zones] [F5 Group Settings Typical] [Alpha]

Alarm Activity [500.0] dpm (4π)
Alarm Test Source [Lantern] Th-228 (α)
Source
Emission Rate [0] α/min
Activity [8000] dpm
Date [30-Sep-2010]
Dimension [3]
× [3] cm²
High Background Rate [100.0] cpm
Excessive Background Rate [1000.] cpm
Low Background Rate [0] cpm
Calibration Source [AMRB17327] Am-241 (α)
Source
Emission Rate [0] α/min
Activity [60.60E+03] dpm
Date [31-May-2010]
Dimension [15]
× [7] cm²
Calibration Distance [0.25] cm

[F3 Setup] [F3 Detection Zones] [F5 Group Settings] [Alpha Body]

Alarm Activity [1000.] dpm (4π)

[F3 Setup] [F3 Detection Zones] [F7 Alarm Test Settings]

Alarm Test Type [Alarm Test] (detector only)
Alarm Test Mode [Alpha(2),Beta(1)]

[F3 Setup] [F3 Detection Zones] [F9 Edit Calibration Source List]

Sources in List [7]

[F3 Setup] [F3 Detection Zones] [Shift+F9 Edit Calibration Jig List]

Jigs in List [0]

[F3 Setup] [F4 Out of Service Causes]

Board Fault [YES]
Not Calibrated [YES]
Low Bkg Rate [AUTO]
Zero Counts [AUTO]
HV Out of Range [YES]
Live Time Error [YES]
Excessive Bkg Rate [AUTO]
High Bkg Rate [AUTO]
High Count Time [AUTO]
Detector Contaminated [AUTO]
Due for Recalibration [NO]
Y: []
M: []
D: []
H: []
or After [365] Days
Carrier Board Fault [YES]
Sensor Board Fault [YES]
Temperature [YES]
Conditional Service Allowed [3] Days

[F3 Setup] [F5 Configuration]

Check Foot for Turn [NO]
Check Body for Turn [NO]
Always Monitor Both Sides [YES]
Contaminated Display Table [Small Font]
Contaminated Table Units [Net Rate]
Contaminated Layout [Separate/Flash]
Contaminated Show [Detector Section]
Show Clean Beta & Alpha in Table [NO]
Alarm Test Contaminated [Show All]

Allow Already Contaminated Filter [YES]
Detection Mode [Alpha(2),Beta(1)]
Detector Contamination Check [If Second Position Contaminated]
Relay 1 Use [None]
Relay 2 Use [None]
Relay 3 Use [None]
Relay 4 Use [None]

[F3 Setup] [F6 Operation Voice & Screen]

Voice Volume [50] %
Voice Choice [1]
Voice Select [fixed]
Fanfare Volume [50] %
Use Verbal Ready [YES]
Use Verbal Countdown [YES]
If No Verbal Use Beep [1] s Interval
Beep Volume [25] %
Playing []
Operation Screen [single language]
Default Language [English] S_EN.dll

[F3 Setup] [F7 Data Log]

Data Log File Type [ANSI]
Include Alpha Channel [YES]
Alarm Test [File] (alarmtst.csv)
Max Size of Alarm Test File [2000000]
Service [File] (service.csv)
Max Size of Service File [2000000]
Event Totals [File] (m_event.csv)
Event Totals Log Period [60] minute
Max Size of Event File [2000000]
Background [File] (bkgnd.csv)
Background Log Period [60] minute
Max Size of Background File [2000000]
Contaminated [File] (contam.csv)
Max Size Contaminated File [2000000]
Clean & Contaminated Results [None]
Max Size of Results File [2000000]
Raw Background [None]

Max Size of Raw Bkg File [2000000]
Calibration Trend [File] (caltrend.csv)
Max Size of Calibration Trend File [2000000]

[F3 Setup] [F8 Print Out]

Print Screen (Key) [B&W Printer]
Auto Save File Type [UNICODE]
Auto Save All Setup Values [YES] SETUP.TXT
Auto Save Calibration [YES] CALIB.TXT
Auto Save Calibration Data [YES] CAL_DATA.TXT
Auto Save Calibration Check Results [YES] CALCHECK.TXT
Include Derived Sum Zone Efficiencies [NO] CALIB.TXT, CAL_DATA.TXT, CALCHECK.TXT
Auto Save Calibration Source List [YES] CAL_LIST.TXT
Auto Save Calibration Results [YES] CALIB YYYYMMDDHHMMSS CAL.CSV
Auto Save Occupant Check Results [YES] RESULT YYYYMMDDHHMMSS P1 C.TXT
Auto Save Pre-Extend Results [NO] RESULT YYYYMMDDHHMMSS E1 C.TXT
Auto Save Detector Check Results [NO] RESULT YYYYMMDDHHMMSS DC C.TXT
Auto Save Verification Test Results [YES] RESULT YYYYMMDDHHMMSS VT.CSV
Auto Save Alarm Test Results [YES] RESULT YYYYMMDDHHMMSS AT C.TXT
Keep Calibration Results [366] Days
Keep Occupant Clean Results [7] Days
Keep Occupant Contaminated Results [21] Days
Keep Verification Test Results [31] Days
Keep Alarm Test Results [7] Days

[F3 Setup] [F9 Data (Network) Transfer]

Send Status
Method [None]
Send Data Log
Method [None]

[F3 Setup] [F10 Radon Rejection]

Radon Rejection [Disable]

[F3 Setup] [F11 Instructions][F1 Ready]

Default Language [English] S_EN.dll
Ready [Ready]

Not Complete [Not Complete]
Calibrated [Calibrated]

[F3 Setup] [F11 Instructions][F2 Position]

Default Language [English] S_EN.dll
Position 1 Line 1 [Face the Detectors]
Position 1 Line 2 [Position Hands & Feet]
Position 1 Line 3 []
Position 2 Line 1 [Place Back to Detectors]
Position 2 Line 2 [Position Hands & Feet]
Position 2 Line 3 []
Left [Left]
Right [Right]

[F3 Setup] [F11 Instructions][F4 Clean]

Default Language [English] S_EN.dll
Clean [Clean]
Please Exit [Please Exit]

[F3 Setup] [F11 Instructions][F5 Contaminated]

Default Language [English] S_EN.dll
Contaminated [Contaminated]
Please Go Back [Please Exit]
Left [Left]
Right [Right]
Front [Front]
Back [Back]
Net [Net]
Gross [Gross]

[F3 Setup] [F11 Instructions][F6 Turn]

Default Language [English] S_EN.dll
Turn [Turn]
Line 1 []
Line 2 []
Line 3 [Please place your back to the detectors]

[F3 Setup] [F11 Instructions][F7 Out of Service]

Default Language [English] S_EN.dll
Out of Service [Out of Service]
Detector Contaminated [Detector Contaminated]
Detector Contaminated Message []
Monitor Out of Service Instruction [Please use another Monitor]
Common Out of Service Instruction []
Excessive Bkg Rate Out of Service Instruction
[]

[F3 Setup] [F11 Instructions][F8 Messages]

Default Language [English] S_EN.dll
Please Wait [Please Wait]
Please Leave [Please Leave]
Initializing [Initializing]
Initializing Background [Initializing Background]
Ramping HV [Ramping HV]
Stabilizing Detector [Stabilizing Detector]
Background Collection Started [Background Collection Started]
Collecting Background [Collecting Background]
High Background [High Background]
Normal [Normal]
Contamination Check [Contamination Check]
Go Back [Please Exit]
Go Back Line 1 []
Logo Screen Background File [] BMP

[F3 Setup] [F11 Instructions][F10 Banners]

Default Language [English] S_EN.dll
Normal Service [REDC]
Conditional Service []
Due for Recalibration [Due for Recalibration]
High Background [High Background]
Excessive Background [Excessive Background]

[F2 Test] [F1 Rate Meter]

Dwell Time [20.000] s

Prompt [Message]

[F2 Test] [F2 HVPS Meter]

Dwell Time [0.500] s

[F2 Test] [F4 Amplifier Pulse Test]

Channel 1
Pulse Amplitude [0.150] V
Discriminator [0.100] V
Channel 2
Pulse Amplitude [1.100] V
Discriminator [0.800] V

[F2 Test] [F5 Detector LED Test]

Dwell Time [0.500] s

[F2 Test] [F6 Sensor Board Tests]

Dwell Time [0.125] s
Sensor Board ID [2]

[F2 Test] [F8 Discriminator Plot] [Typical] [Beta]

Discriminator [0.050] V
Minimum Volts [0.000] V
Maximum Volts [0.250] V
Step Volts [0.005] V
Dwell Time [1.000] s
Maximum Rate [30.00E+03] cpm
Scale Type [Sqrt]

[F2 Test] [F8 Discriminator Plot] [Typical] [Alpha]

Discriminator [0.600] V
Minimum Volts [0.000] V
Maximum Volts [1.000] V
Step Volts [0.010] V
Dwell Time [1.000] s

Maximum Rate [30.00E+03] cpm
Scale Type [Sqrt]

[F2 Test] [F9 Plateau Plot] [Typical]

High Voltage [1600] V
Minimum Volts [1300] V
Maximum Volts [1900] V
Step Volts [5] V
Dwell Time [1.000] s
Maximum Rate [30.00E+03] cpm

[F2 Test] [F10 Detector Board ID]

Dwell Time [0.500] s
Typical Detector Board ID [6]

[F2 Test] [F11 Carrier Board Tests]

Dwell Time [0.500] s
Test Volume [50] %
Display [Normal]
Carrier Board ID [5]

[Shift+F2 Additional Tests] [F2 Optimize Self Shield Factors]

Unshielded Count Time [180] s
Shielded Count Time [180] s
Minimum Gamma Self Shield Factor [0.95]
Minimum Beta Self Shield Factor [0.98]
Self Shield Type [Occupied]
Unshielded Status [None]
Shielded Status [None]

[Ctrl+F10 Factory Setup] [F1 Model Selection]

Model [Argos-5AB]
Legacy Model [NO]
Setup Language [English] S_EN.dll
Font [ARIAL]
Auxiliary Sensor Board Installed [NO]

Head Motor Control Board Installed [NO]
Head Detector Installed [Alpha, Beta]
Item Detector 30 Installed [NO] (Small Article)
Item Detector 31 Installed [NO] (Small Article)
Shoe Detector Installed [Alpha, Beta]
Detector 01 Installed [Alpha, Beta]
Detector 04 Installed [Alpha, Beta]
Frisker Detector Installed [NO]
Demonstration [NO]
Simulator [NO]
Allow Conditional Service [YES]
Have Program Start Clear All Faults [NO]
Radon Rejection Support [YES]
Krypton Mode Support [NO]

[Ctrl+F10 Factory Setup] [F2 Occupant Configuration]

Board [254 ID 2 Sensor Board ASSY:D216540 SCN:816540]
Approach [TB18 Approach 1]
Approach 2 [TB09 Approach 2]
Occupied [TB19 Occupied]
Foot 1 [TB11 Foot 1]
Foot 2 [TB21 Foot 2]
Toe Facing [None]
Body Close [TB13 Body]
Hand 1 [TB10 Hand 1]
Hand 2 [None]
Alarm Test [TB24 Alarm Test]
Gas Flow OK [None]
Display Last Contaminated [None]
Hand & Foot [None]
Language [None]
One Handed Operation [None]
No Body Close Operation [None]
Resume Contaminated [None]
Ready Lamp [TB02-3 TB08-3 Rdy]
Fault Lamp [TB02-2 TB08-2 Flt]
Wait Lamp [None]
Contaminated [None]
Clean [None]
Relay 1 [TB03 Relay 1]

Relay 2 [TB04 Relay 2]
Relay 3 [TB05 Relay 3]
Relay 4 [TB06 Relay 4]

[Ctrl+F10 Factory Setup] [F3 Badge Configuration]

Badge Reader Enabled [NO]

[Ctrl+F10 Factory Setup] [F4 Access Configuration]

Board [254 ID 2 Sensor Board ASSY:D216540 SCN:816540]
Manual Stop Measurement - Input [None]
Security Supervisor Access - Input [None]
UPS ON - Input [None]
Cold to Hot [No]
Hot Side
Default Configuration [None]
Lock - Output [None]
Close - Output [None]
Reset - Output [None]
Closed - Input [None]
Opened - Input [None]
Fault - Input [None]
Security Key - Input [None]
Access Key - Input [None]
Access Scanner - Input [None]
Open Barrier [Normal]
Service Open [NO]
Alarm Test Open [NO]
Security Supervisor Open [NO]
Hot Side Security Key Open [NO]
Cold Side Security Key Open [NO]
Cold Side
Default Configuration [None]
Lock - Output [None]
Close - Output [None]
Reset - Output [None]
Closed - Input [None]
Opened - Input [None]
Fault - Input [None]
Security Key - Input [None]

Access Key - Input [None]
Access Scanner - Input [None]
Open Barrier [Normal]
Service Open [NO]
Alarm Test Open [NO]
Security Supervisor Open [NO]
Hot Side Security Key Open [NO]
Cold Side Security Key Open [NO]

[Ctrl+F10 Factory Setup] [F6 Access Level Settings]

Enable Password Control [NO]