

**1.0 INTRODUCTION**

This procedure describes the operating practices used by the Quality department for Receipt & Shipping of ION detectors by Grinnell Fire Protection Systems Company, Westlake.

**2.0 SCOPE**

The purpose of this procedure is to document the methods used by the Quality Assurance Department to verify that the 612I and 912I Ion detectors conform to the requirements of the U. S. Nuclear Regulatory Commission prior to distribution.

**3.0 DEFINITIONS**

RSO – Radiation Safety Officer

**4.0 RESPONSIBILITIES**

It is the responsibility of the inspector to carry out all checks in accordance with this procedure.

It is the responsibility of the Radiation Safety Officer to oversee the receipt and shipment of the Ion Detectors.

**5.0 PROCEDURE**

**5.1 Preliminary activities.**

Verify that the part number and quantity is correct according to the receiver.


Inspect the packaging for damage that would compromise the integrity of the sealed ion chamber. If the packaging is damaged and evidence of detector damage is apparent, contact the RSO immediately. Upon determination that the extent of the damage has compromised the integrity of the sealed source, immediately quarantine the damaged items. Perform a wipe test of the packaging and wrap the items with plastic sheeting. Attach a DO NOT USE tag to the package.

**DO NOT USE**

The quality characteristics of these items are being evaluated. Under no circumstances, may this product be shipped until ALL items of the sample units pass the quality checks. Please see the RSO for the status of this shipment.

If no apparent signs of damage exist, pull a random sample of the detector shipment according to the Lot Tolerance Percent Defective Chart shown below.

Lot size	Sample size	Acceptance No.
1 to 30	All	0
31 to 50	30	0
51 to 100	37	0
101 to 200	40	0
201 to 300	43	0
301 to 400	44	0
401 to 2,000	45	0
2,001 to 100,000	75	1

 <b>Grinnell</b> <small>FIRE PROTECTION SYSTEMS COMPANY</small>	Procedure	Quality	10/19/98
<b>Title: Receipt &amp; Shipping of ION Detectors</b>			Page 2 of 3

Perform an inspection of the random sample based upon the Quality Characteristics listed below. After samples have been pulled, quarantine the balance of the shipment and attach a DO NOT USE tag to the items.

## 5.2 Quality Characteristics

### 5.2.1 Design Conformance:

- Verify that the sample lot conforms to the current design requirements submitted to the U.S. Nuclear Regulatory Commission by reviewing the current set of prints and bill of material.
- Verify that the point of use label conforms to the current design requirements.

**NOTE!** 100% of the sample must pass the design conformance section of the inspection process. If any failures exist, contact the RSO immediately to arrange the return of goods to the supplier.

### 5.2.2 Safety Features

- Review Amersham and Tyco Electronic Products group wipe test results that accompany the shipment. Forward to the RSO.
- Perform a wipe test on the sample detectors according to the method described below. The leak test threshold is specified in Nuclear Regulatory Commission guidelines as .005 microcuries of removable contamination.


#### Wipe Test Activities for the Inspector

1. Open 5 ion smoke detectors and place on inspection bench.
2. Remove one wet alcohol swab from the packet.
3. Wipe all accessible surfaces of the exterior of the 5 detectors.
4. Place the wet alcohol swab in the plastic sleeve of the Wipe test form.
5. Remove one dry alcohol swab from the packet.
6. Wipe the same exterior surfaces of the 5 detectors.
7. Place the dry alcohol swab in the plastic sleeve of the Wipe test form.
8. Label the wipe test form 1 through 5 as well as each detector box. Re-pack the five detectors and place in a separate box from the lot received.
9. Continue in quantities of 5 units until the correct sample size has been completed. Label each form and individual detector boxes accordingly.
10. Place all wiped detectors in the quarantined area.
11. Attach the "Awaiting Wipe Test Results DO NOT USE" tag to the box.
12. Deliver the wipe test forms to the RSO.

#### Wipe Test Activities for the RSO

1. Mail the wipe test forms to the consultant.
2. Upon receipt of the results, make the following determination based upon the following options.

#### Options

 <b>Grinnell</b> <small>FIRE PROTECTION SYSTEMS COMPANY</small>	Procedure	Quality	10/19/98
	<b>Title: Receipt &amp; Shipping of ION Detectors</b>		

- A. Analysis of **ALL** samples indicate less than .005 microcuries of removable contamination. Release stock to inventory and notify shipping that all detectors have been approved for shipment for customer orders.
- B. Analysis of all samples indicate more than .005 microcuries of removable contamination exists. Return entire lot to the supplier and notify them that the entire lot must be wipe tested.

**5. Shipping**

- When completing sales order for ION detectors the stock clerk will
  - Pull inventory from boxes marked "ACCEPTABLE PRODUCT"
  - Complete the shipping log book.
  - Apply an exterior package label to the outside of the carton

**6.0 RECORDS**

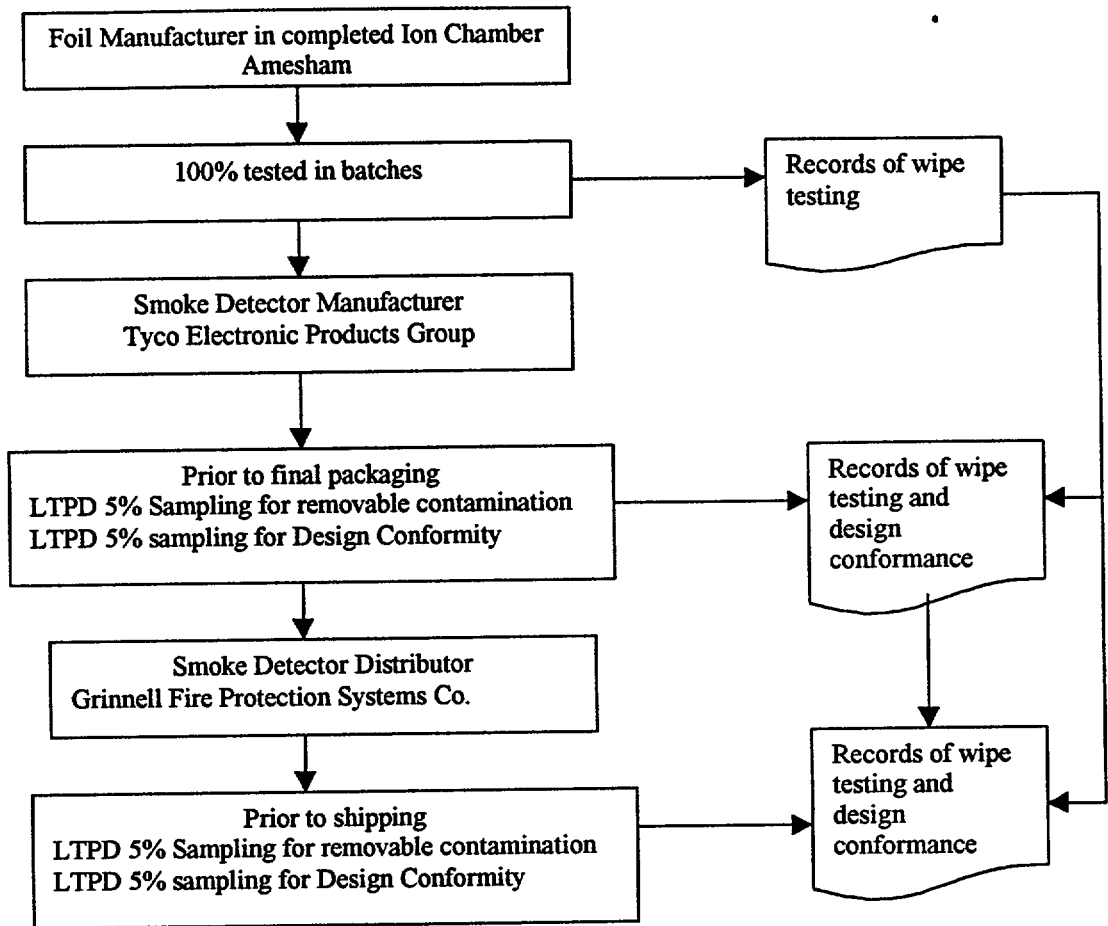
6.1 The quality records generated include

Responsible	Location	Record	Retention Period	Disposition
Inspector	QA office	Shipping Log Book	5 years	Destroy
Inspector	QA office	Inspection reports	5 years	Destroy
TEPG	QA office	Amersham wipe test results	5 years	Destroy
QA manager	QA office	Grinnell wipe test results	5 years	Destroy
QA manager	QA office	TEPG wipe test results	5 years	Destroy

**7.0 RECORD OF CHANGE**

ISSUE DATE	DESCRIPTION OF CHANGE	APPROVED BY
06-01-98	New procedure	Radiation Safety Officer QA Manager Director of Operations
10/16/98	Updated for license requirements Sample size	Radiation Safety Officer QA Manager Director of Operations

### LoPro Ion Detector Processing Flowchart



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