



cardinalhealth.com

April 25, 2014

U.S. Nuclear Regulatory Commission
Region III – Division of Nuclear Materials Safety
2443 Warrenville Rd, Suite 210
Lisle, IL 60532-4352

Re: Amendment Request for Radioactive Materials License 34-29200-01MD, Cardinal Health Nuclear Pharmacy Services, Dublin, OH.

Radioactive Materials Licensing:

Cardinal Health 414, LLC (Nuclear Pharmacy Services, hereafter Cardinal Health) requests the Cesium-137 instrument calibrator sealed sources be removed from the above referenced license, items 6.H., 7.H., 8.H., 9.H and 6.I., 7.I., 8.I., 9.I., as follows:

- Victoreen model 726 calibrator, formerly at Cardinal Health, Kansas City, MO; and
- Victoreen gamma survey instrument calibrator, model 773, formerly at Cardinal Health, Indianapolis, Indiana.

Both Cs-137 sealed sources were returned to the manufacturer. Please remove the category 3.P. and associated billing from the annual license fees. Documentation of the transfer of the sealed sources to the manufacturer for disposal is enclosed in Attachment A.

If you have any questions regarding this request, please contact Dan Hill at 614.757.5074.

Sincerely,

A handwritten signature in blue ink, appearing to read "Willie Regits".

Willie Regits, Ph D.
Corporate Radiation Safety Officer
Director, Health Physics
Nuclear Pharmacy Services

/dh

Enclosure: Attachment A – Cs-137 Transfer Documents

cc: Consolidated NRC File (3)

Amanda Jehl, RSO, Loc. 7010
Asma Abassi, RSO, Loc. 7028

RECEIVED MAY 1 4 2014

John Alexander, RSO, Loc. 7002
Steven Miller, RSO, loc. 7011
Mathew Svejck, RSO, Loc. 7013
Christie Holland, RSO, Loc. 7016
Sharon Thompson, RSO, Loc. 7025
Earl Robertson, RSO, Loc. 7030
Jay Simmons, RSO, Loc. 7088
Brian Porter, RSO, Loc. 7109
Dane Dishman, RSO, Loc. 7120
John A. Miller, RSO, Loc. 7128
Bruce Jorgensen, RSO, Loc. 7172
Mark Peters, RSO, Loc. 7200
Nate Johnson, RSO, Loc. 7201
William Balogh, Loc. 7231
Mark Rotman, RSO, Loc. 7306
Doug Sopp, RSO, Loc. 7341
Justin Goodnite, RSO, Loc. 7545
Michael Chee, RSO, Loc. 7232

ATTACHMENT A

Sealed Source Transfer Documents



6765 Langley Drive
Baton Rouge, Louisiana 70809
Telephone: 225-751-5893
Fax: 225-756-0365

Date: April 24, 2014

Amanda Jehl, RHP, RSO
Cardinal Health NPS #10
7920 Georgetown Road
Suite #100
Indianapolis, IN 46268

Reference: 2014-026

This is to advise that the material detailed below has been received by QSA Global, Inc as of 4-24-14 and we have taken possession of this device and source.

| Manufacturer | Model | Source S/N | Isotope | Activity |
|----------------------|-------------|------------|---------|----------|
| Technical Operations | 773 s/n 138 | S-445 | Cs-137 | 154 mci |

Please retain this record for your files. Should you require further assistance, please contact us at QSA Global, Inc.

Regards,

Rusty Barrett
Technical Service Manager

fedEx US Airbill
Express

FedEx Tracking Number **8729 9828 8914**

Form ID No. **0215** **Sender's Copy**

From *Please print and press hard.*

Date **April 22 2014** Sender's FedEx Account Number **1088-1978-7**

Sender's Name **Amanda Tehl** Phone **(317) 872-3301**

Company **CARDINAL HEALTH**

Address **7920 GEORGETOWN RD STE 100**

Dept./Floor/Suite/Room

City **INDIANAPOLIS** State **IN** ZIP **46268**

Your Internal Billing Reference

First 24 characters will appear on invoice.

OPTIONAL

To Recipient's Name **Rusty Barrett** Phone **(800) 225-1383**

Company **QSA Global Inc (RA# 2014-26)**

Address **6765 Langley Drive**

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept./Floor/Suite/Room

Address Use this line for the HOLD location address or for combination of your shipping address.

City **Baton Rouge** State **LA** ZIP **70809**

0422346225

4a Express Package Service * To most locations.

Packages up to 150 lbs.

- FedEx Priority Overnight
Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Standard Overnight
Next business afternoon.* Saturday Delivery NOT available.
- FedEx First Overnight
Earliest next business morning delivery to select locations.**
- FedEx 2Day
Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx Express Saver
Third business day.* Saturday Delivery NOT available.

4b Express Freight Service ** To most locations.

Packages over 150 lbs.

- FedEx 1Day Freight
Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx 2Day Freight
Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx 3Day Freight
Third business day.** Saturday Delivery NOT available.

CALL 1 800.332.0807

5 Packaging * Declared value limit \$500.

- FedEx Envelope*
- FedEx Pak*
Includes FedEx Small Pak and FedEx Large Pak.
- FedEx Box
- FedEx Tube
- Other

6 Special Handling and Delivery Signature Options

- SATURDAY Delivery
NOT available for FedEx Standard Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- No Signature Required
Package may be left without obtaining a signature for delivery.
- Direct Signature
Someone at recipient's address may sign for delivery. Fee applies.
- Indirect Signature
If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

- No
- Yes
As per attached Shipper's Declaration.
- Yes
Shipper's Declaration not required.
- Dry Ice
Dry Ice, 6 UN 1845 - _____ x _____ kg
- Cargo Aircraft Only

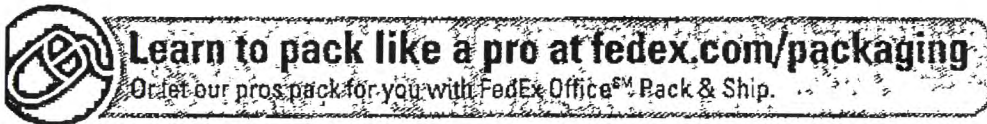
7 Payment Bill to:

- Sender
Acct. No. in Section 7 will be billed.
- Recipient
- Third Party
- Credit Card
- Cash/Check

Total Packages **1** Total Weight **60** lbs. Total Declared Value* **\$ 1500.00**

*Our liability is limited to \$100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

605



SHIPPER'S DECLARATION FOR DANGEROUS GOODS

(Provide at least three copies to the airline.)

| | |
|--|---|
| Shipper Cardinal Health 7929 Georgetown Road Suite 100 Indianapolis, IN 46268 | Air Waybill No 872998288914 Page 1 of 1 Pages Shipper's Reference Number |
|--|---|

| | |
|--|--|
| Consignee QSA Global Inc 6765 Langley Drive Baton Rouge, LA 70809 | |
|--|--|

Two completed and signed copies of this Declaration must be handed to the operator

WARNING

 Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties.

| TRANSPORT DETAILS | | | |
|--|---|------------------------------|--|
| This shipment is within the limitations prescribed for (delete non applicable) | Airport of Departure <p style="text-align: center;">IND</p> | | |
| <table border="1"> <tr> <td>PASSENGER AND CARGO AIRCRAFT</td> <td>CARGO AIRCRAFT ONLY X</td> </tr> </table> | PASSENGER AND CARGO AIRCRAFT | CARGO AIRCRAFT ONLY X | |
| PASSENGER AND CARGO AIRCRAFT | CARGO AIRCRAFT ONLY X | | |
| Airport of Destination: SHOPLA | | | |


Shipment type: (delete non-applicable)
 NON-RADIOACTIVE RADIOACTIVE

NATURE AND QUANTITY OF DANGEROUS GOODS

| Dangerous Goods Identification | | | | | | |
|--------------------------------|--------------------------------------|-------------------------------------|----------------|--|---|---------------|
| UN or ID No. | Proper Shipping Name | Class or Division (Subsidiary Risk) | Pack-Ing Group | Quantity and type of packaging | Packing Inst. | Authorization |
| UN 2915 | Radioactive Material, Type A Package | 7 | | Cs-137, Inorganic Salt, Solid, 1 Type A package, 2.566 GBq | II-Yellow, T1 0.5, DIM 28 x 15.5 x 41 cm | |

Additional Handling Information

 Emergency Spill-Leak-Fire-Exposure or Accident Contact:
 Emergency Telephone Number **CHEMTREC 800.424.9300** Customer #204503

| | |
|---|---|
| I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable International and National Governmental Regulations. I declare that all of the applicable air transport requirements have been met. | Name/Title of Signatory Amanda Jehl, Radiation Safety Officer Place and Date Cardinal Health, Indianapolis, 04-22-14 Signature (see warning above)  |
|---|---|

FOR RADIOACTIVE MATERIAL SHIPMENT ACCEPTABLE FOR PASSENGER AIRCRAFT, THE SHIPMENT CONTAINS RADIOACTIVE MATERIAL INTENDED FOR USE IN OR INCIDENT TO RESEARCH, MEDICAL DIAGNOSIS, OR TREATMENT

THIS SOURCE WAS TESTED FOR
EXTERNAL CONTAMINATION OR LEAKAGE

ards
atory
t



DATE 9/21/83 MICROCURIES 1000 BY RLK

GAMMA RAY SOURCE CALIBRATION

DATE 9/21/83 MICROCURIES 1000 BY RLK

Tech/Ops, Inc.

TECHNICAL OPERATIONS INC

Isotope

Test No.

Date Measured

Radiation Products Division
Burlington, Massachusetts 01803

CS-137

26069

27 Sept. 83

Source
Identification

Roentgens/Hr.
at 1 Meter

Curies

S-445

0.0493

0.154

The gamma-ray emission of the sealed source herein described was intercompared with the radiation from a reference standard cobalt-60 source whose intensity had been established relative to a National Bureau of Standards calibrated cobalt-60 source. Comparison was made either with an uncollimated plastic-lined ionization chamber encased in a 3-mm thick aluminum container sealed against atmospheric pressure, or with an NBS-calibrated Victoreen R-meter whose readings were compensated for atmospheric pressure and temperature. All readings were corrected for air scattering and absorption. The source was measured with its axis of symmetry parallel with/perpendicular to the line joining source and detector. The reported output is believed to be accurate within ± 3 percent, the stated uncertainty of the reference NBS sources. Precision is believed to be better than ± 1 percent.

Signed

Robert L. Kelly

Calibration performed for: NUCLEAR ASSOCIATES

Div. of Victoreen, Inc.

100 Voice Rd.

Carle Place, NY 11514

Model 773, S/N 138

Source decay correction factors

| Cobalt-60 | | Iridium-192 | | Cesium-137 |
|-----------|-------|-------------|-------|------------|
| years | mos | weeks | days | years |
| 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| .877 | .989 | .937 | .991 | .977 |
| .768 | .978 | .877 | .981 | .955 |
| .674 | .967 | .821 | .972 | .933 |
| .590 | .957 | .769 | .963 | .912 |
| .518 | .946 | .721 | .954 | .892 |
| .454 | .936 | .675 | .945 | .871 |
| .398 | .926 | .632 | .937 | .852 |
| .349 | .916 | .592 | | .832 |
| .306 | .905 | .554 | | .813 |
| .268 | .895 | .519 | | .795 |
| .235 | .886 | .486 | | .777 |
| .206 | .877 | .455 | | .759 |
| 5.26y | | 74.0d | | 30.2y |
| 1.30 | | 0.55 | | 0.32 |



6765 Langley Drive
Baton Rouge, Louisiana 70809
Telephone: 225-751-5893
Fax: 225-756-0365

Date: April 24, 2014

Asma Abbasi
Cardinal Health NPS
9668 Marion Ridge
Kansas City, MO 64137

Reference: 2014-023

This is to advise that the material detailed below has been received by QSA Global, Inc as of 4-24-14 and we have taken possession of this device and source.

| Manufacturer | Model | Source S/N | Isotope | Activity |
|---------------------|--------------|-------------------|----------------|-----------------|
| Victoreen | 726 s/n 154 | S-268 | Cs-137 | 96.1mci |

Please retain this record for your files. Should you require further assistance, please contact us at QSA Global, Inc.

Regards,

Rusty Barrett
Technical Service Manager

Job No:

Customer:

CARDINAL HEALTH, KANSAS CITY, MO

Source Return Inquiry Approval Form

Please fill out all applicable sections of the Source Detail Forms.
This information will be used to determine if disposal services
can be provided by QSA Global Inc.



6765 Langley Drive Ph 800-225-1383
Baton Rouge, LA 70809 Fx 225-756-0365

Part I - SOURCE DETAILS

| Source Details | Source 1 | Source 2 | Source 3 | Source 4 |
|--|-----------------------------------|-------------------------------|----------|----------|
| 1 Radionuclide | Cs-137 | Cs-137 | | |
| 2 Total Radioactivity- Specify Units (e.g. MBq or Ci) | 96.1 mCi | less than 10 uCi | | |
| 3 Reference date for activity | 1/25/1978 | 5/24/1979 | | |
| 4 Source manufacturer (if known) | Victoreen | Dosimeter Corp of America | | |
| 5 Source serial number and model number (if known) | SN #8268 Model #726 | SN# 020 Model #3060 | | |
| 6 Physical dimensions of source or source holder (Specify Units) | See Picture | See Picture | | |
| 7 Is source mounted in equipment?(if yes, attach drawings/photographs, give manufacturer and model number) | See Picture | See Picture | | |
| 8 Date of most recent leak test (attach copy of results) | N/A | N/A | | |
| 9 Is source damaged or discolored or leaking or contaminated? (if yes, describe in detail) | NO | NO | | |
| 10 Does the source have a special form approval? (If yes, specify certificate number.) | NO | NO | | |
| 11 Company Name & Address: Cardinal Health NPS 9668 Marion Ridge Kansas City, MO 64137 | 12. Contact Person Asma Abbasi | 13. Telephone 816-966-2020 | | |
| 14 Address of Source Location: (If different from above address) | 15.Contact Person: | 16. Telephone: | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

EXTERNAL CONTAMINATION OR LEAKAGE

Standards
Laboratory
Report



2-1-78 1005 PR
2-1-78 1005 PR

GAMMA RAY SOURCE CALIBRATION

Technical Operations, Incorporated

TECHNICAL OPERATIONS INC.

Radford Products Division
Burlington, Massachusetts 01803

Isotope

Test No.

Date Measured

Cs¹³⁷

2209

1-25-78

Source
Identification

Roentgens/Hr.
at 1 Meter

Curies

S-268

.03075

.0961

Source decay correction factors

| Age in: | Cobalt-60 | | Iridium-192 | | Cesium-137 |
|------------------|-----------|-------|-------------|-------|------------|
| | years | mos | weeks | days | years |
| 0 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| 1 | .877 | .989 | .937 | .991 | .977 |
| 2 | .768 | .978 | .877 | .981 | .955 |
| 3 | .674 | .967 | .821 | .972 | .933 |
| 4 | .590 | .957 | .769 | .963 | .912 |
| 5 | .518 | .946 | .721 | .954 | .892 |
| 6 | .454 | .936 | .675 | .945 | .871 |
| 7 | .398 | .926 | .632 | .937 | .852 |
| 8 | .349 | .916 | .592 | | .832 |
| 9 | .306 | .905 | .554 | | .813 |
| 10 | .268 | .895 | .519 | | .795 |
| 11 | .235 | .886 | .486 | | .777 |
| 12 | .206 | .877 | .455 | | .759 |
| T _{1/2} | 5.26y | | 74.0d | | 30.2y |
| Rhm/ci | 1.33 | | 0.55 | | 0.32 |

The gamma-ray emission of the sealed source herein described was intercompared with the radiation from a reference standard cobalt-60 source whose intensity had been established relative to a National Bureau of Standards calibrated cobalt-60 source. Comparison was made either with an uncollimated plastic-lined ionization chamber encased in a 3-mm thick aluminum container sealed against atmospheric pressure, or with an NBS-calibrated Victoreen R-meter whose readings were compensated for atmospheric pressure and temperature. All readings were corrected for air scattering and absorption. The source was measured with its axis of symmetry parallel with/perpendicular to the line joining source and detector. The reported output is believed to be accurate within ± 3 percent, the stated uncertainty of the reference NBS sources. Precision is believed to be better than ± 1 percent.

Signed Paul A. Randon

Calibration performed for: Pharmaco Nuclear Inc.
Mod. # 726 #10 154 1734 E. 63 ST.
Kansas City, Mo.

SHIPPER'S DECLARATION FOR DANGEROUS GOODS

(Provide at least three copies)

| | | | |
|---|---------------------|--|--|
| Shipper Cardinal Health Nuclear Pharmacy 9668 Marion Ridge Kansas City, MO 64137 (816) 966-2020 | | Air Waybill No Page 1 of 1 Pages Shipper's Reference Number | |
| Consignee QSA Global 6765 Langley Drive Baton Rouge, LA 70809 800-225-1383 | | This shipment of radioactive material is intended for use in, or incident to, research, medical diagnosis or treatment | |
| Two completed and signed copies of this Declaration must be handed to the operator. | | WARNING | |
| TRANSPORT DETAILS | | Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder or an IATA cargo agent. | |
| This shipment is within the limitations prescribed for <i>(delete non-applicable)</i> | | Airport of Departure | |
| PASSENGER AND CARGO XXXXXXXX | CARGO AIRCRAFT ONLY | | |
| Airport of Destination | | Shipment type: <i>(delete non-applicable)</i> NON-RADIOACTIVE RADIOACTIVE | |

NATURE AND QUANTITY OF DANGEROUS GOODS

Proper shipping name, Class or Division, UN Number or Identification Number, Packing Group (if required), and all other required information

**UN 2915, Radioactive Material, Type A Package, 7,
Cs-137 Sealed Source, One Type A package, 1.706 GBq,
Yellow-II, TI 0.5, Dim 14 11/16 x 18 1/4 inches**

Additional Handling Information

Emergency Telephone Number

010 271 5000
CHEMTREC 800-424-9300

I hereby declare that the contents of this consignment are fully and

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to the applicable international and national government regulations. I declare that all of the applicable air transport requirements have been met.

Name/Title of Signatory

Place and Date
Kansas City, MO 64137 04-22-2014

Signature
(see warning above)

Asma Abbasi, RSO



SHIPPER'S DECLARATION FOR DANGEROUS GOODS

(Provide at least three copies)

| | | | | | |
|---|--------------------------------|---|---------------------|-------------------|--|
| Shipper Cardinal Health Nuclear Pharmacy 9668 Marion Ridge Kansas City, MO 64137 (816) 966-2020 | | Air Waybill No Page 1 of 1 Pages Shipper's Reference Number | | | |
| Consignee QSA Global 6765 Langley Drive Baton Rouge, LA 70809 800-225-1383 | | This shipment of radioactive material is intended for use in, or incident to, research, medical diagnosis or treatment | | | |
| Two completed and signed copies of this Declaration must be handed to the operator. | | WARNING Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder or an IATA cargo agent. | | | |
| TRANSPORT DETAILS | | | | | |
| This shipment is within the limitations prescribed for (delete non-applicable) | Airport of Departure | Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder or an IATA cargo agent. | | | |
| <table border="1"> <tr> <td>PASSENGER AND CARGO</td> <td>CARGO AIRCRAFT ONLY</td> </tr> <tr> <td>XXXXXX</td> <td></td> </tr> </table> | PASSENGER AND CARGO | | CARGO AIRCRAFT ONLY | XXXXXX | |
| PASSENGER AND CARGO | CARGO AIRCRAFT ONLY | | | | |
| XXXXXX | | | | | |
| Airport of Destination | | Shipment type: (delete non-applicable) NON-RADIOACTIVE RADIOACTIVE | | | |

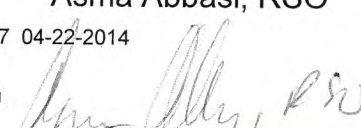
NATURE AND QUANTITY OF DANGEROUS GOODS
 Proper shipping name, Class or Division, UN Number or Identification Number, Packing Group (if required), and all other required information

**UN 2915, Radioactive Material, Type A Package, 7,
 Cs-137 Sealed Source, One Type A package, 1.706 GBq,
 Yellow-II, TI 0.5, Dim 14 11/16 x 18 1/4 inches**

Additional Handling Information

Emergency Telephone Number **010 271 5000**
CHEMTREC 800-424-9300

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to the applicable international and national government regulations. I declare that all of the applicable air transport requirements have been met.

| | |
|---|---|
| Name/Title of Signatory Place and Date Kansas City, MO 64137 04-22-2014 Signature (see warning above) | Asma Abbasi, RSO  |
|---|---|

From: (614) 757-5074
Dan Hill
Cardinal Health
7000 Cardinal Place

Dublin, OH 43017

Origin ID: OSUA



Ship Date: 08MAY14
ActWgt: 1.0 LB
CAD: 104744132/INET3490

Delivery Address Bar Code



SHIP TO: (630) 829-9854

BILL SENDER

**Radioactive Material Licensing
US NRC Region III
2443 Warrenville Road
Suite 210
LISLE, IL 60532**

Ref # 2250001338
Invoice #
PO #
Dept #

RECEIVED MAY 13 2014

TUE - 13 MAY AA
EXPRESS SAVER

TRK# 7987 9555 0543

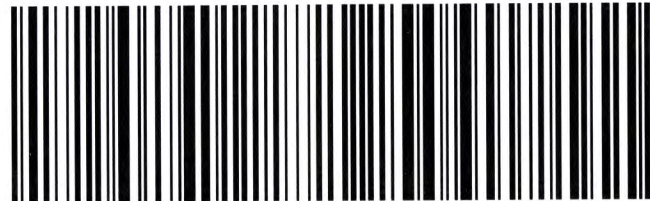
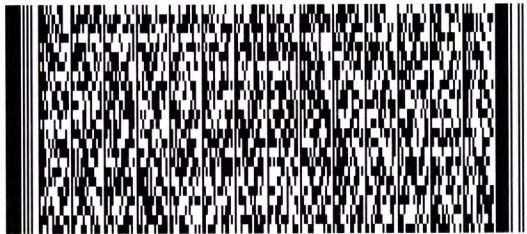
0201

60532

IL-US

ORD

SH ENLA



522G162D3/F220

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.