WESTON SOLUTIONS, INC.
205 CAMPUS DRIVE
EDISON, NEW JERSEY 08837
732-417-5800 • FAX: 732-417-5801

The Trusted Integrator for Sustainable Solutions

December 3, 2013

Mr. Andrew Fessler, Work Assignment Manager
U.S. Environmental Protection Agency
290 Broadway - 18th Floor
New York, NY 10007-1866

Document Control No.: 2222-2A-BKSO

Subject: **Sampling Trip Report**
Work Assignment No. 2222, Canadian Radium & Uranium Corp. Site Reassessment
Contract No.: EP-S5-06-04, TDD No.: S05-0013-1307-009

Dear Mr. Fessler:

Weston Solutions, Inc. (WESTON®) is pleased to submit the Sampling Trip Report for the soil sampling associated with the Canadian Radium & Uranium Corp. Site. WESTON personnel collected soil samples from borehole locations advanced at and near the site property on November 20 and 21, 2013. In addition, a gamma radiation survey was completed from November 20 through November 22 and air measurements were collected on November 25, 2013. If you have any questions, please contact me at (732) 417-5814.

Very truly yours,

WESTON SOLUTIONS, INC.

Denise Breen

Denise Breen
Assistant Project Scientist

enclosure
cc:
C. Romano, EPA (w/o enclosure)
G. Gilliland, WESTON (w/o enclosure)
Site file

I:\WO\START3\2099\45796

SAMPLING TRIP REPORT

SITE NAME: Canadian Radium & Uranium Corp. (CRU)
DCN: 2222-2A-BKSO
W.O.: 20405.012.013.2222.00
CLP Case No.: No case number assigned

EPA I.D. NO.: N/A

SAMPLING DATES: November 20-21, 2013

1. Site Location: Refer to Figure 1

2. Site Map: Refer to Figure 2

2. Sample Locations: Refer to Figure 3

4. Laboratories Receiving Samples:

Analyses	Name and Address of Laboratory
Isotopic Uranium (IsoU), Isotopic Thorium (IsoTh), Radium-226, and Radium-228 by alpha spectroscopy, and radioisotopes by gamma spectroscopy and Target Analyte List (TAL) Inorganics	TestAmerica 13715 Rider North Trail Earth City, MO 63045

5. Sample Dispatch Data:

- One soil sample and one aqueous rinsate blank for IsoU, IsoTh, Radium-226, and Radium-228 by alpha spectroscopy, and radioisotopes by gamma spectroscopy and TAL Inorganics analysis were collected on 11/20/13 and shipped to the TestAmerica laboratory on 11/25/13 under Federal Express Airbill No. 875063371418.

- Eight soil samples for IsoU, IsoTh, Radium-226, and Radium-228 by alpha spectroscopy, and radioisotopes by gamma spectroscopy and TAL Inorganics analysis were collected on 11/21/13 and shipped to the TestAmerica laboratory on 11/25/13 under Federal Express Airbill No. 875063371418.

6. Sampling Personnel:

Name	Organization	Site Duties
Denise Breen	WESTON	Field Team Leader**,** Global Positioning System (GPS) Data Collection, Sampler
Jeffrey Lynes	WESTON	Sample Management Officer (SMO), Sampler, GPS Data Collection
Sam Cheek	WESTON	GPS Data Collection Site Health and Safety Coordinator (SHSC)**,** GPS Data Collection (11/20/2013-11/22/2013)
Robert Sellers	WESTON	Sampler, GPS Data Collection (11/25/2013)
Carlos Fuentes	Goldstar	Geoprobe® Operator (11/20/2013 and 11/22/2013)
Andrew Fessler	EPA	Work Assignment Manager (WAM)

7. Additional Comments:

On November 20-21, 2013, WESTON personnel collected soil samples as part of the Site Reassessment sampling event for the CRU site. A total of nine soil samples (including 1 environmental duplicate sample) were collected from eight boreholes advanced through the CRU site and the right-of-way (ROW) of the property adjacent to the north of the Site property, using Geoprobe® direct-push technology.

At each borehole location, a gamma scintillation meter (Ludlum 2221 Scaler Ratemeter) was descended into a temporary PVC casing in order to determine the highest gamma radiation reading. The PVC casing was used to prevent damage to the equipment as well as obtaining the most accurate data. The soil samples collected represent the highest levels of gamma radiation recorded for each borehole. Soil samples were collected using dedicated sampling equipment. Potential source and release samples were collected from the former CRU property; background samples were collected from the northwest corner of the site property and from the ROW of the neighboring property to the north. Background sample locations were based on the historic wind directions, upwind of the influence of site activities.

There were photoionization detector (PID) readings above background from two soil locations, S02 and S03, with readings of approximately 330 and 121 units above background, respectively. Each sample was homogenized in a dedicated, disposable aluminum tray with a dedicated,

disposable plastic scoop prior to insertion into the sample container. All remaining soil not used for laboratory analysis was discarded at the sampling location.

The soil samples will be analyzed by TestAmerica laboratory for TAL metals analysis; IsoTh, IsoU, Radium-226, and Radium-228 by alpha spectroscopy; and radioisotopes by gamma spectroscopy. One soil sample was designated as Matrix Spike/Matrix Spike Duplicate (MS/MSD) for Quality Assurance/Quality Control (QA/QC) purposes. One rinsate blank was collected to demonstrate adequate decontamination of non-dedicated sampling equipment (cutting shoe).

In addition to the soil sampling, the site was also screened to delineate the area of observed contamination by measuring the gamma radiation exposure rates within and around the source area and at background locations. Areas of observed contamination can be defined by site-attributable gamma radiation exposure rates, as measured by a survey instrument held one meter above the ground surface, which equal or exceed two times the site-specific background gamma radiation exposure rate.

Air measurements were collected on November 25, 2013. Two potential source measurements (and one duplicate) and one downwind measurement were collected on the site property. Two air monitoring locations were positioned north of site property and are considered to be background sample locations upwind of the influence of site activities, based on the historic wind directions. The sample inlets were set one meter above the ground surface, and flowed through a 6-inch-long drying tube filled with desiccant, through a 3-foot-long vinyl hose, through an inlet particulate filter, and into the RAD7 instrument. The pre-calibrated RAD7 detectors were set up to run for 4 hours at each location with a measurement recorded every hour. Due to time constraints and darkness, the second round of RAD7 measurements ran for 3 hours at each location with a measurement recorded every hour.

WESTON logged soil sample locations, areas of observed contamination and air monitoring locations electronically using GPS equipment and performed post-processing differential correction of the GPS data in accordance with EPA Region 2 GPS Standard Operating Procedures. The processed GPS data for all samples has been transferred to the Sample Location Map (Figure 3) using Geographic Information Systems.

All samples were collected from locations associated with the former CRU site under the Region V Superfund Technical Assessment and Response Team III (START III) contract. All samples were shipped via Federal Express to the TestAmerica lab for analysis. The Chain-of-Custody Records and Federal Express Airbill are presented in Attachment 1.

8. Report Prepared by:  Date: 12/3/13

Denise Breen

9. Report Approved by:  Date: 12/3/13

Gerald V. Gilliland, P.G.

I:\WO\START3\2222\ 46539

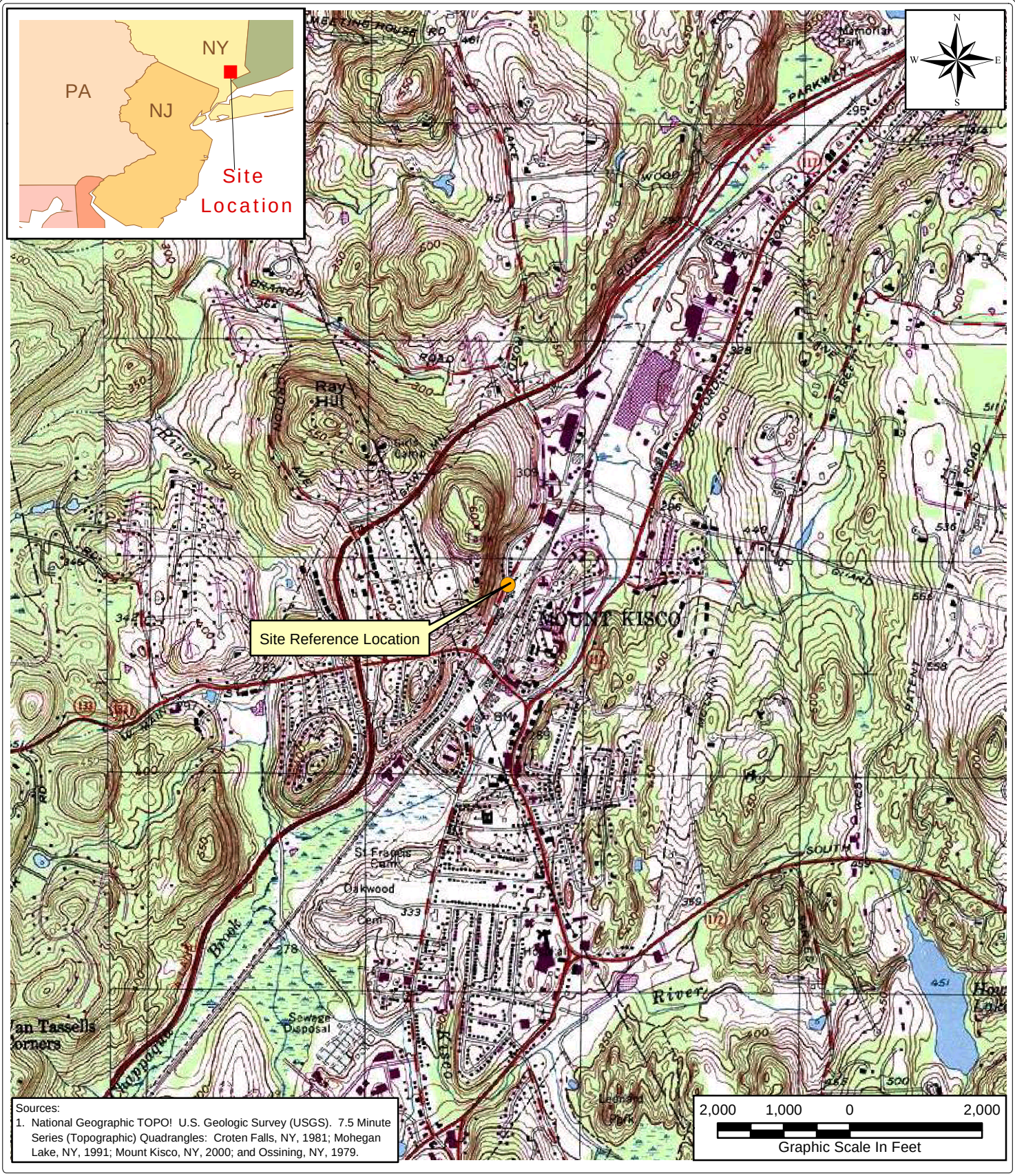
TABLE 1
SAMPLE DESCRIPTIONS
CANADIAN RADIUM & URANIUM CORP.
THE VILLAGE OF MOUNT KISCO, NEW YORK

Sample No.	Date	Time	Comments
2222-S01	11/20/2013	1015	Soil sample collected from the western portion of the property. Highest gamma radiation readings recorded at the 2-3 foot internal, 6,905 counts per minute (cpm). Depth: 2-3 feet. Description: Medium brown sand, loose; dry.
2222-S02	11/21/2013	1610	Soil sample collected from the eastern portion of the property. Highest gamma radiation readings recorded at the 0-1 foot internal, 90,949 cpm. Depth: 0-1 foot. Description: Coarse black sand, cobble, loose.
2222-S03	11/21/2013	1630	Soil sample collected from the eastern portion of the property. Highest gamma radiation readings recorded at the 0-1 foot internal, 91,400 cpm. Depth: 0-1 foot. Description: Medium black sand, cobble, loose; dry.
2222-S04 **(MS/MSD)**	11/21/2013	1525	Soil sample collected from the northern portion of the property. Highest gamma radiation readings recorded at the 3-4 foot internal, 11,170 cpm. Depth: 3-4 foot. Description: Medium to Coarse brown sand, some cobble, and brick fragments, loose; dry. Matrix Spike/Matric Spike Duplicate (MS/MSD) for Quality Assurance/Quality Control (QA/QC) purposes.
2222-S05	11/21/2013	1440	Soil sample collected from the southern portion of the property. Highest gamma radiation readings recorded at the 0-1 foot internal, 41,725 cpm. Depth: 0-1 foot. Description: Medium brown sand, some cobble, trace organics, loose; moist.
2222-S06	11/21/2013	1450	Soil sample collected from the southern portion of the property. Highest gamma radiation readings recorded at the 0-1 foot internal, 14,452 cpm. Depth: 0-1 foot. Description: Medium to Coarse dark gray sand, some brick fragments, loose; moist.
2222-S07	11/21/2013	1635	Soil sample collected to document background conditions from the right-of-way (ROW) of the adjacent property to the north. Highest gamma radiation readings recorded at the 1-2 foot internal, 1,416 cpm. Depth: 1-2 foot. Description: Fine to Medium brown silty sand with cobble, soft; moist.
2222-S08	11/21/2013	1667	Soil sample collected to document background conditions from the northwestern portion of the property. Highest gamma radiation readings recorded at the 3-4 foot internal, 2,856 cpm. Depth: 3-4 foot. Description: Cobble, Medium black sand and ground up asphalt, loose.
2222-S09	11/21/2013	1527	Duplicate of 2222-S04
2222-RIN01	11/20/2013	1445	Rinsate blank sample collected from the decontaminated cutting shoe.

FIGURE 1 – SITE LOCATION MAP

FIGURE 2 – SITE MAP

FIGURE 3 – SAMPLE LOCATION MAP



Sources:
1. National Geographic TOPO! U.S. Geologic Survey (USGS). 7.5 Minute Series (Topographic) Quadrangles: Croton Falls, NY, 1981; Mohegan Lake, NY, 1991; Mount Kisco, NY, 2000; and Ossining, NY, 1979.

LEGEND:

Site Reference Location

TITLE:

Facility Location Map
Canadian Radium & Uranium Corp.
105/103 Kisco Avenue
Mount Kisco, NY 10549

PROJECT:
Canadian Radium & Uranium Corp.

CLIENT NAME:
EPA

DATE:
December 2013

FIGURE #:
1

P:\SAT2\2013 NY RAD Sites\Canadian_Radium_Uranium\MXD\13927_CRU_TR_Site.mxd

Sources:
1. NYS Division of Homeland Security and Emergency Services - Office of Cyber Security. Niagara County 12 Inch Ortho (4bd). http://www.orthos.dhses.ny.gov/?id=974130. November 2011.
2. NYS Division of Homeland Security and Emergency Services - Office of Cyber Security. Erie County 12 Inch Ortho (4bd). http://www.orthos.dhses.ny.gov/?id=974130. November 2011.

LEGEND:

Approximate Footprint of the Former Canadian Radium & Uranium Corp. Property

PROJECT:
Canadian Radium & Uranium Corp.

TITLE:

Site Map
Canadian Radium & Uranium Corp.
103/105 Kisco Avenue
Mount Kisco, NY 10549

CLIENT NAME:
EPA

WESTON SOLUTIONS

DATE:
Decembner 2013

FIGURE #:
2

P:\SAT2\2013 NY RAD Sites\Canadian_Radium_Uranium\MXD\13928_CRU_TR_Aerial.mxd

P:/SAT2/2013 NY RAD Sites/Canadian_Radium_Uranium/MXD/13901_CRU_Sample_Loc.mxd

Scale:
80 40 0 80
Graphic Scale In Feet

TITLE:
Sample Location and Source Map
Canadian Radium & Uranium Corp.
103/105 Kisco Avenue
Mount Kisco, NY 10549

DRAWN BY: J. Lynes
REVIEWED BY: D. Breen
PROJECT MANAGER: D. Breen
SCALE: 1" = 80'
DATE: December 2013

N
W E
S

PROJECT: Canadian Radium & Uranium Corp.

CLIENT NAME: EPA

WESTON SOLUTIONS

DRAWING NUMBER: 13901

FIGURE #: 3

ATTACHMENT 1

CHAIN OF CUSTODY RECORDS and AIRBILL

USEPA

DateShipped: 11/25/2013

CarrierName: FedEx

AirbillNo: 875063371418

CHAIN OF CUSTODY RECORD

Site #: S05-0013-130

Contact Name: Denise Breen

Contact Phone: 908-472-8409

No: 20131120_CRU

Cooler #:

Lab: TestAmerica Laboratories, Inc - St. Louis, MO

Lab Phone:

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	2222-S01	S01	TAL Metals, IsoU,IsoTh, Gamma	Soil	11/20/2013	10:15	1	16 oz Plastic	4 C	N
	2222-S02	S02	TAL Metals, IsoU,IsoTh, Gamma	Soil	11/21/2013	16:10	1	16 oz Plastic	4 C	N
	2222-S03	S03	TAL Metals, IsoU,IsoTh, Gamma	Soil	11/21/2013	16:30	1	16 oz Plastic	4 C	N
	2222-S04	S04	TAL Metals, IsoU,IsoTh, Gamma	Soil	11/21/2013	15:25	1	16 oz Plastic	4 C	Y
	2222-S05	S05	TAL Metals, IsoU,IsoTh, Gamma	Soil	11/21/2013	~~1440~~ 1420 JL	1	16 oz Plastic	4 C	N
	2222-S06	S06	TAL Metals, IsoU,IsoTh, Gamma	Soil	11/21/2013	14:50	1	16 oz Plastic	4 C	N
	2222-S07	S07	TAL Metals, IsoU,IsoTh, Gamma	Soil	11/21/2013	16:35	1	16 oz Plastic	4 C	N
	2222-S08	S08	TAL Metals, IsoU,IsoTh, Gamma	Soil	11/21/2013	16:37	1	16 oz Plastic	4 C	N
	2222-S09	S04	TAL Metals, IsoU,IsoTh, Gamma	Soil	11/21/2013	15:27	1	16 oz Plastic	4 C	N

Special Instructions: TAT = 30 Day
Lab QC = MS/MSD

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	(Weston Solutions)	11/25/13	FedEx		
				11/26/13 1000	

USEPA

DateShipped: 11/25/2013

CarrierName: FedEx

AirbillNo: 875063371418

CHAIN OF CUSTODY RECORD

Site #: S05-0013-130

Contact Name: Denise Breen

Contact Phone: 908-472-8409

No: 20131120_CRU_RB

Cooler #:

Lab: TestAmerica Laboratories, Inc - St. Louis, MO

Lab Phone:

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	2222-RB01	Rinsate Blank	IsoU, IsoTh, Gamma, Ra-226/228	Blank	11/20/2013	14:45	5	Plastic Jar	HNO3	N
	2222-RB01	Rinsate Blank	TAL Metals	Blank	11/20/2013	14:45	1	Plastic Jar	HNO3	N

Special Instructions: TAT = 30 Day

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	[signature] (Weston Solutions)	11/25/13	FedEx		
			[signature]	11/26/13 1000	

Express

Tracking Number 8750 6337 1418

Form ID No. 0200

Sender's Copy

1 From *Please print and press hard.*

Date NOV 25, 2013 Sender's FedEx Account Number 108067691

Sender's Name Denise Breen Phone (908) 472-8409

Company Weston Solutions, Inc.

Address 205 Campus Dr. Dept./Floor/Suite/Room

City Edison State NJ ZIP 08837

2 Your Internal Billing Reference First 24 characters will appear on invoice. 20405.016.013.2222.00

3 To

Recipient's Name Erika Gish Phone ( )

Company TestAmerica

Address 13715 Rider North Trail Dept./Floor/Suite/Room
We cannot deliver to P.O. boxes or P.O. ZIP codes.

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

City Earth City State MO ZIP 63045

☐ HOLD Weekday FedEx location address REQUIRED. NOT available for FedEx First Overnight.

☐ HOLD Saturday FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

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 1Day Freight Booking No.
- ☐ 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.

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? One box must be checked.

☐ No ☐ Yes As per attached Shipper's Declaration. ☑ Yes Shipper's Declaration not required. ☐ Dry Ice Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. ☐ Cargo Aircraft Only

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below.

☑ Sender Acct. No. in Section 1 will be billed. ☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†
	lbs.	$ 1000 .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.

606

Rev. Date 2/10 • Part #150281 • ©1994–2010 FedEx • PRINTED IN U.S.A. SRY

RETAIN THIS COPY FOR YOUR RECORDS.