



Transportation  
Security  
Administration

August 12, 2011

Ms. Marisa Maola  
Federal Security Director  
Transportation Security Administration  
La Guardia International Airport (LGA)

Dear Ms. Maola:

The TSA Office of Occupational Safety, Health, and Environment (OSHE) is sponsoring an independent radiation protection survey project of general-use backscatter x-ray advanced imaging technology (AIT) systems and cabinet x-ray systems through an interagency agreement with the U.S. Army Public Health Command (USAPHC). This survey project is not to be confused with the radiation surveys performed during preventive maintenance checks. The annual equipment inspections are conducted by certified equipment maintenance personnel under specific testing conditions, whereas the survey project is conducted by USAPHC personnel under normal operating conditions; e.g., baggage flow-through or passenger screening with TSOs in attendance.

As part of the survey project, a radiation protection survey of the general-use backscatter x-ray AIT system used at TSA LGA was conducted on May 25, 2011, by a team of certified health physicists from USAPHC's Health Physics Program, Army Institute of Public Health. The purpose of the survey was to ensure that the general-use backscatter x-ray AIT system complies with the requirements of ANSI/HPS N43.17-2009 and to identify any health hazards associated with the x-ray system. No surveys were performed for cabinet x-ray systems at this time.

*General-use Backscatter X-ray AIT System*

The general-use backscatter x-ray AIT was evaluated and found to be in compliance with the radiation dose limits specified in ANSI/HPS N43.17-2009. There are no health hazards associated with the use of this general-use backscatter x-ray AIT system provided the appropriate operating procedures are followed.

The surveyed AIT system was also in compliance with the other requirements of the ANSI/HPS standard. However, the survey officers noted an administrative item that needs tending to, specifically that the access panel doors were not locked on the master unit. This finding is described on page 2 of the attached report and in the enclosed survey report (Enclosure 1 of report).

Your early attention to correcting the identified finding is requested. Please contact the TSA Service Response Center at 1-800-820-8535 for assistance.

If you have questions or comments about the report's contents, please direct them to me at

Sincerely,

A handwritten signature in cursive script that reads "Jill M. Segraves".

Jill M. Segraves, CSP

Director

Office of Occupational Safety, Health, and Environment

cc: Ms. Christine Halfacre, Chief of Staff, Office of Security Technology

Enclosure: TSA LGA Radiation Protection Survey Report, dated 1 August 2011



DEPARTMENT OF THE ARMY  
US ARMY INSTITUTE OF PUBLIC HEALTH  
5158 BLACKHAWK ROAD  
ABERDEEN PROVING GROUND MD 21010-5403

01 AUG 2011

Health Physics Program

Ms. Jill Segraves  
Transportation Security Administration  
TSA-170SHE  
601 South 12<sup>th</sup> Street  
Arlington, Virginia 22202

Dear Ms. Segraves:

This letter is in reference to the Memorandum of Agreement between the U.S. Army Medical Command and the Transportation Security Administration (TSA), signed September 10, 2008; electronic mail message, subject: John F. Kennedy Travel Arrangements, 13 May 2011; and American National Standards Institute/Health Physics Society (ANSI/HPS) N43.17-2009.

A radiation protection survey was performed on May 25, 2011, at LaGuardia International Airport, New York, NY, Project No. 26-MF-0EW8-11. The survey was performed to:

- a. Evaluate one advanced imaging technology (AIT) x-ray system to ensure compliance with the requirements of ANSI/HPS N43.17-2009.
- b. Identify any health hazards associated with the use of this x-ray system.
- c. Provide recommendations to assist in correcting any areas of regulatory noncompliance or health hazards.

The survey was performed by [REDACTED] Certified Health Physicist, Health Physics Program (HPP), Army Institute of Public Health (AIPH), and [REDACTED] Nuclear Medical Science Officer, HPP, AIPH. A total of one AIT x-ray system was evaluated for compliance with the requirements of ANSI/HPS N43.17-2009. The survey results are provided in the Enclosure.

The x-ray system tested was found to be in compliance with the radiation dose limits specified in ANSI/HPS N43.17-2009. There is no health hazard associated with the use of this system provided appropriate operating procedures are followed.

The system was found to be in compliance with the other requirements of ANSI/HPS N43.17-2009.

In addition, the survey officers noted the following administrative item during the survey: The access panel doors were not locked on the master unit.

Based on dosimetry and field measurements around Secure 1000 SP systems and cabinet x-ray systems, it is estimated that Transportation Security Officers will receive a radiation dose of less than 10 millirem per year. For comparison, the occupational limit under Occupational Safety and Health Administration regulations is 1,250 millirem per quarter (5,000 millirem per year). The goal of the TSA radiation safety program is to keep all exposure less than 100 millirem per year.

The survey officers discussed the survey results with Mr. Barney Rabbito and the TSA personnel operating the system at the time of the survey.

For more information concerning the survey, please contact the AIPH, HPP, at

[REDACTED]

Sincerely,

[REDACTED]

[REDACTED]

Portfolio Director  
Occupational Health Sciences

Enclosure

## Survey Results for one AIT X-Ray System

**Encl**

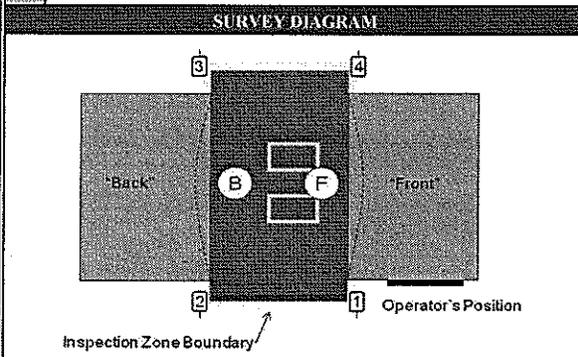
# Survey Worksheet - AIT X-Ray Systems

Health Physics Program  
U.S. Army Public Health Command (Provisional)  
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0EW8-11			Location	Terminal B, Gate D		
Survey Date	25 May 2011			Organization	LaGuardia International		
Surveyor(s)	[REDACTED]			Street Address	Ditmars Blvd and 94th St		
	[REDACTED]			City/Installation	Flushing	State	New York
				ZIP	11369		

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 May 2012	Rapiscan	Secure 1000 SP	S51023005	Jun 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	*	Service Provider Survey Date	8 Mar 2011		

VISUAL INSPECTION					
Y	N	Requirement	Y	N	Requirement
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	"Caution: X-Rays Produced When Energized" label present at control to initiate scan? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.d)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	X-ray emission terminates after a present time or exposure? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.e)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Tool or key required to open or remove access panels? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	NT=not tested; NA=not applicable.		



**SCANNING MEASUREMENTS**

Scanning below action levels? Yes  No   
(If no, explain in comments)

Inspection zone boundary scanned with Instrument #3.

**SCATTERED RADIATION**

Location	Scan 1	Scan 2	Scan 3	Average
1	0.00 μR	0.00 μR	0.00 μR	0.00 μR
2	0.00 μR	0.00 μR	0.00 μR	0.00 μR
3	0.00 μR	0.00 μR	0.00 μR	0.00 μR
4	0.00 μR	0.00 μR	0.00 μR	0.00 μR

**DOSE PER SCREENING**

Trial	Exposure (X)		Reference Effective Dose per Screening (max 25 μrem) <sup>1</sup> :
	"Front" Side	"Back" Side	
a	6.32 μR	6.71 μR	2.1 μrem or 0.021 μSv
b	6.31 μR	6.64 μR	
c	6.31 μR	6.58 μR	
d	6.31 μR	6.66 μR	
e	6.24 μR	6.58 μR	
AVG	6.30 μR	6.63 μR	

Energy Correction Factor: 1.25

**RESULT** PASS

**BEAM QUALITY**

mm Al	Exposure (X)		HVL "Front" Side	HVL "Back" Side	Conversion Factor	Min. Filtration <sup>1</sup>
	"Front" Side	"Back" Side				
0	2.01 μR	2.25 μR	1.1 mm Al	1.1 mm Al	0.124	1.0 mm Al
0	2.01 μR	2.28 μR				
1	1.07 μR	1.21 μR				
1	1.07 μR	1.21 μR				
1.5	0.81 μR	0.94 μR				
1.5	0.81 μR	0.94 μR				

<sup>1</sup> An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system.

**RESULT** PASS

**COMMENTS AND RECOMMENDATIONS**

\* The WB Johnson TVX-2000 was response checked prior to the survey.  
\*\* The access panel on the master unit was unlocked at the time of the survey.