



Transportation
Security
Administration

September 8, 2011

Mr. Michael A. Scott
Federal Security Director
Transportation Security Administration
John F. Kennedy International Airport (JFK)

Dear Mr. Scott:

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 used at TSA JFK was conducted on May 23-25, 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 systems comply with the requirements of ANSI/HPS N43.17-2009 and to identify any health hazards associated with the x-ray systems. No surveys were performed for cabinet x-ray systems at this time.

General-use Backscatter X-ray AIT Systems

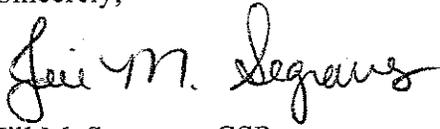
A total of 23 general-use backscatter x-ray AIT were evaluated and found to be in compliance with the radiation dose limits specified in ANSI/HPS N43.17-2009. There are no health hazards associated with the use of these general-use backscatter x-ray AIT systems provided the appropriate operating procedures are followed.

The surveyed AIT systems were also in compliance with the other requirements of the ANSI/HPS standard. However, the survey officers noted a number of administrative items during the surveys that require attention; for example, the access panel doors on three of the units were found to be unlocked and the "Scan in Progress" light was not fully illuminated on another two units. These findings are described on page 2 of the attached report and in applicable survey reports (Enclosure 1 of report).

Your early attention to correcting the identified findings 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,



Jill M. Segraves, CSP

Director

Office of Occupational Safety, Health, and Environment

cc: Mr. Timothy Norris, Designated Occupational Safety and Health Official
Ms. Christine Halfacre, Chief of Staff, Office of Security Technology

Enclosure: TSA JFK Radiation Protection Survey Report, dated 1 July 2011



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

Health Physics Program

01 JUL 2011

Ms. Jill Segraves
Transportation Security Administration
TSA-170SHE
601 South 12th 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: 2400.2.1 AIT Radiation Safety Survey Visit May 23-26, 2011, 12 May 2011; and American National Standards Institute/Health Physics Society (ANSI/HPS) N43.17-2009.

A radiation protection survey was performed on May 23-25, 2011 at John F. Kennedy International Airport, New York, NY, Project No. 26-MF-0EGD-11. The survey was performed to:

- a. Evaluate the advanced imaging technology (AIT) x-ray systems to ensure compliance with the requirements of ANSI/HPS N43.17-2009
- b. Identify any health hazards associated with the use of these x-ray systems.
- 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 23 AIT x-ray systems were evaluated for compliance with the requirements of ANSI/HPS N43.17-2009. The survey results for each system are provided in Enclosure 1.

All x-ray systems tested were 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 these systems provided appropriate operating procedures are followed.

All systems were found to be in compliance with the other requirements of ANSI/HPS N43.17-2009.

In addition, the survey officers noted the following administrative items during the surveys:

a. The access panel doors were not locked on the following systems:

Location	Serial No.	Unlocked Access Panel
Terminal 3, Checkpoint 4	S51011002	Master Side
Terminal 5, AIT #11-12	S50949005	Slave Side
Terminal 7, Main, AIT #5-6	S51038007	Master Side

b. The "Scan in Progress" light was only partially illuminated on the following systems: Terminal 8, AIT #1-2 (SN S51037006) and Terminal 8, AIT #1-2 (SN S51037002).

c. One system (Terminal 5, AIT #3-4, SN 50949004) stopped working part way through the survey. This system had been down for repair.

Based on dosimetry and field measurements around the Secure 1000 SP 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. Michael Scott, Federal Security Director; Mr. Mohammad Siddiqui, Stakeholder Manager; and Mr. Stephen Doyle, Safety Coordinator on 26 May 2011. A copy of the survey notes is provided in Enclosure 2.

For more information concerning the survey, please contact the AIPH, Health Physics Program, at [REDACTED].

Sincerely,

[REDACTED]

[REDACTED]
Portfolio Director
Occupational Health Sciences

Enclosures

Survey Results for 23 AIT X-Ray Systems

Encl 1

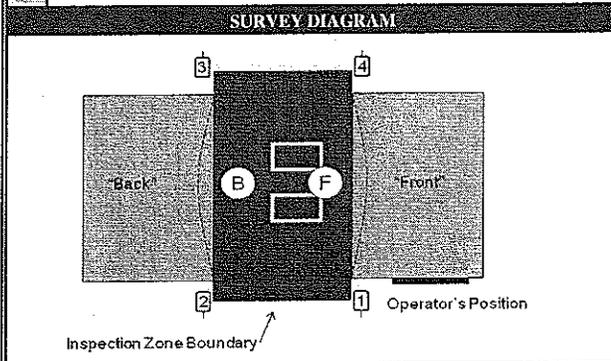
Survey Worksheet - AIT X-Ray Systems

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

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MR-0EGD-11			Location	Terminal 1, Main, AIT #1		
Survey Date	25 May 2011			Organization	John F. Kennedy International		
Surveyor(s)	[REDACTED]			Street Address	Van Wyck and JFK Expressway		
				City/Installation	Jamaica	State	NY ZIP 11430

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51017015	Apr 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	15 Mar 2011		

Y		N		Requirement	Y		N		Requirement
<input checked="" 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"/>				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"/>				"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"/>				X-ray emission terminates after a preset time or exposure? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.e)
<input checked="" 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"/>				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"/>				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"/>				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"/>				Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	<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"/>				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 (Optional)

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

†Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING

Trial	Exposure (X)				Reference Effective Dose per Screening (max 25 μrem):
	"Front" Side		"Back" Side		
a	7.04	μR	6.98	μR	2.1 μrem or 0.021 μSv
b	7.04	μR	6.98	μR	
c	6.98	μR	6.98	μR	
d	6.98	μR	7.05	μR	
e	6.97	μR	6.97	μR	
AVG	7.00	μR	6.99	μR	
Energy Correction Factor	1.25				
Measurements made with Instruments #1 & #2					RESULT PASS

BEAM QUALITY

mm Al	Exposure (X)				HVL "Front" Side	HVL "Back" Side	Conversion Factor	Min. Filtration ¹
	"Front" Side	"Back" Side	"Front" Side	"Back" Side				
0	2.74	μR	2.54	μR	1.1	mm Al	0.120	1.0
0	2.74	μR	2.47	μR	1.1	mm Al		
1	1.44	μR	1.30	μR				
1	1.37	μR	1.30	μR				
1.5	1.16	μR	1.10	μR				
1.5	1.17	μR	1.03	μR				
Measurements made with Instruments #1 & #2					RESULT PASS			

¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system.

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.

Survey Worksheet - AIT X-Ray Systems

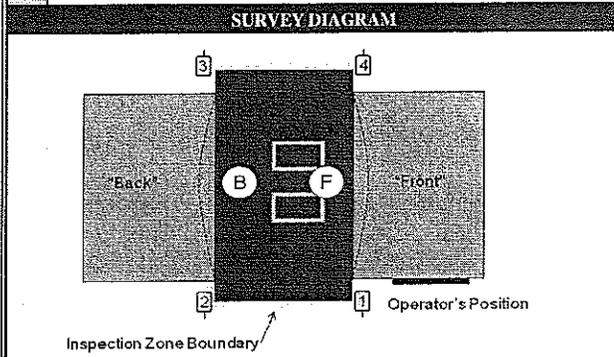
Health Physics Program
U.S. Army Public Health Command (Provisional)
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0EGD-11			Location	Terminal 1, Main, AIT #2		
Survey Date	25 May 2011			Organization	John F. Kennedy International		
Surveyor(s)	[REDACTED]			Street Address	Van Wyck and JFK Expressway		
				City/Installation	Jamaica	State	NY ZIP 11430

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51017014	Apr 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	15 Mar 2011		

VISUAL INSPECTION				
Y	N	Requirement	Requirement	
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"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)	X	X-ray emission terminates after a preset time or exposure? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X	Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X	Tool or key required to open or remove access panels? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X	User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)
X		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 (Optional)†

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

†Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING

Trial	Exposure (X)			
	"Front" Side		"Back" Side	
a	6.72	μR	6.90	μR
b	6.78	μR	6.98	μR
c	6.71	μR	6.91	μR
d	6.71	μR	6.97	μR
e	6.70	μR	6.91	μR
AVG	6.72	μR	6.93	μR
Energy Correction Factor	1.25			

Reference Effective Dose per Screening (max 25 μrem):
2.1 μrem
or
0.021 μSv

RESULT **PASS**

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X)	
	"Front" Side	"Back" Side
0	2.74 μR	2.18 μR
0	2.67 μR	2.25 μR
1	1.37 μR	1.16 μR
1	1.44 μR	1.16 μR
1.5	1.16 μR	0.89 μR
1.5	1.09 μR	0.95 μR

HVL "Front" Side mm Al
HVL "Back" Side mm Al
Conversion Factor
Min. Filtration¹ mm Al

¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system.

RESULT **PASS**

Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.

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-0EGD-11	Location	Terminal 2, AIT #1
Survey Date	25 May 2011	Organization	John F. Kennedy International
Surveyor(s)		Street Address	Van Wyck and JFK Expressway
		City/Installation	Jamaica State NY ZIP 11430

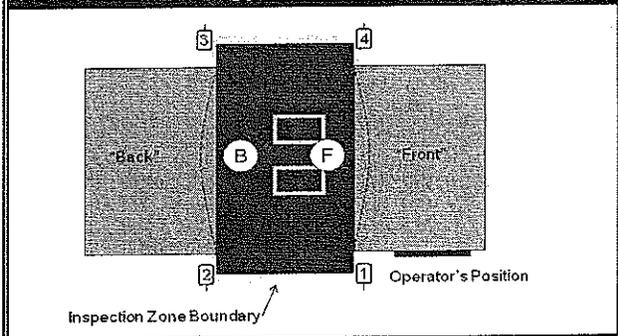
INSTRUMENTS USED SYSTEM INFORMATION

Instrument #	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51030002	Aug 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	17 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 preset 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 checked="" type="checkbox"/>	<input 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.		

SURVEY DIAGRAM SCANNING MEASUREMENTS



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

Inspection zone boundary scanned with Instrument #3.

SCATTERED RADIATION (Optional)†						
Location	Scan 1	Scan 2	Scan 3	Average		
1	μR	μR	μR	μR		
2	μR	μR	μR	μR		
3	μR	μR	μR	μR		
4	μR	μR	μR	μR		

† Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING BEAM QUALITY

Exposure (X)			Reference Effective Dose per Screening (max 25 μrem):
Trial	"Front" Side	"Back" Side	
a	5.60 μR	5.72 μR	1.7 μrem or 0.017 μSv
b	5.52 μR	5.72 μR	
c	5.53 μR	5.72 μR	
d	5.67 μR	5.72 μR	
e	5.58 μR	5.72 μR	
AVG	5.58 μR	5.72 μR	
Energy Correction Factor			1.25
Measurements made with Instruments #1 & #2			RESULT PASS

Exposure (X)				HVL "Front" Side	HVL "Back" Side	Conversion Factor	Min. Filtration†
mm Al	"Front" Side	"Back" Side					
0	2.00 μR	2.07 μR		1.1 mm Al	1.0 mm Al	0.117	1.0 mm Al
0	2.00 μR	2.07 μR					
1	1.00 μR	1.07 μR					
1	1.07 μR	1.00 μR					
1.5	0.80 μR	0.87 μR					
1.5	0.80 μR	0.87 μR					
Measurements made with Instruments #1 & #2				RESULT PASS	† An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system.		

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.

Survey Worksheet - AIT X-Ray Systems

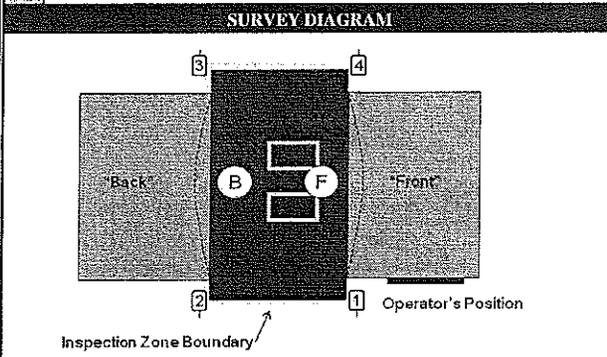
Health Physics Program
U.S. Army Public Health Command (Provisional)
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0EGD-11			Location	Terminal 3, Checkpoint 123		
Survey Date	25 May 2011			Organization	John F. Kennedy International		
Surveyor(s)				Street Address	Van Wyck and JFK Expressway		
				City/Installation	Jamaica	State	NY

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51030004	Aug 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	17 Mar 2011		

VISUAL INSPECTION			
Y	N	Requirement	Requirement
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"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)	X-ray emission terminates after a preset time or exposure? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	Tool or key required to open or remove access panels? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)
X		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 (Optional)†

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

†Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING

Trial	Exposure (X)		Reference Effective Dose per Screening (max 25 μrem):
	"Front" Side	"Back" Side	
a	5.03 μR	5.57 μR	1.7 μrem or 0.017 μSv
b	5.10 μR	5.57 μR	
c	5.10 μR	5.50 μR	
d	5.23 μR	5.50 μR	
e	5.23 μR	5.50 μR	
AVG	5.14 μR	5.53 μR	

Energy Correction Factor: 1.25

RESULT **PASS**

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X)		HVL "Front" Side	HVL "Back" Side	Conversion Factor	Min. Filtration ¹
	"Front" Side	"Back" Side				
0	1.99 μR	1.86 μR	1.0	1.1	0.121	1.0
0	2.06 μR	1.79 μR				
1	1.06 μR	1.00 μR				
1	1.00 μR	0.93 μR				
1.5	0.80 μR	0.73 μR				
1.5	0.80 μR	0.73 μR				

¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system.

RESULT **PASS**

Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.

Survey Worksheet - AIT X-Ray Systems

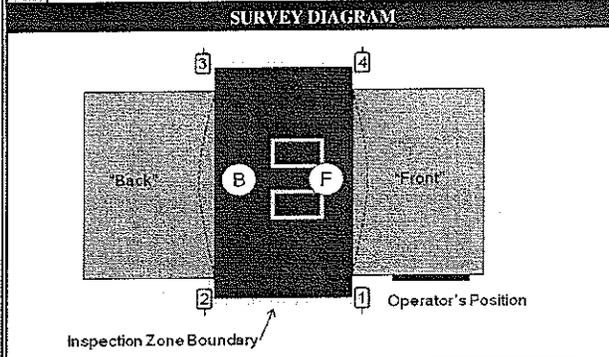
Health Physics Program
U.S. Army Public Health Command (Provisional)
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0EGD-11			Location	Terminal 3, Checkpoint 4		
Survey Date	25 May 2011			Organization	John F. Kennedy International		
Surveyor(s)	[REDACTED]			Street Address	Van Wyck and JFK Expressway		
				City/Installation	Jamaica	State	NY ZIP 11430

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51011002	Mar 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	17 Mar 2011		

VISUAL INSPECTION				
Y	N	Requirement	Requirement	
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"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)	X	X-ray emission terminates after a preset time or exposure? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X	Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X	Tool or key required to open or remove access panels? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X	User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)
X		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 (Optional)†

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

†Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING

Trial	Exposure (X)			
	"Front" Side		"Back" Side	
a	6.58	μR	6.59	μR
b	6.71	μR	6.51	μR
c	6.78	μR	6.44	μR
d	6.84	μR	6.51	μR
e	6.91	μR	6.51	μR
AVG	6.76	μR	6.51	μR
Energy Correction Factor	1.25			

Reference Effective Dose per Screening (max 25 μrem):

2.2 μrem
or
0.022 μSv

RESULT PASS

BEAM QUALITY

mm Al	Exposure (X)			
	"Front" Side		"Back" Side	
0	2.26	μR	1.59	μR
0	2.39	μR	1.53	μR
1	1.20	μR	0.86	μR
1	1.13	μR	0.86	μR
1.5	0.93	μR	0.66	μR
1.5	0.86	μR	0.66	μR

HVL "Front" Side 1.0 mm Al

HVL "Back" Side 1.2 mm Al

Conversion Factor 0.130

Min. Filtration¹ 1.0 mm Al

¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system.

RESULT PASS

Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.
Access panel on master (front) unit was unlocked.

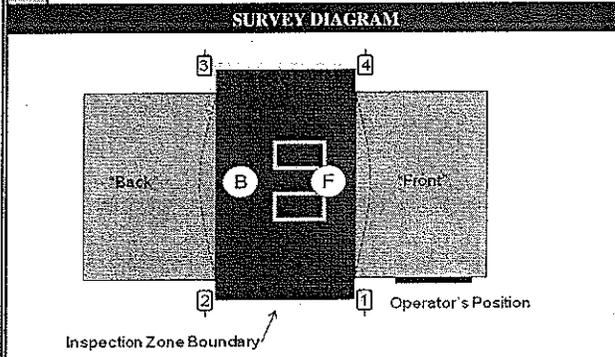
Survey Worksheet - AIT X-Ray Systems

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

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0EGD-11			Location	Terminal 3, Customer Service		
Survey Date	25 May 2011			Organization	John F. Kennedy International		
Surveyor(s)	[REDACTED]			Street Address	Van Wyck and JFK Expressway		
				City/Installation	Jamaica	State	NY ZIP 11430

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S50948007	Nov 2009
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	17 Mar 2011		

VISUAL INSPECTION				
Y	N	Requirement	Y N	Requirement
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"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)	X	X-ray emission terminates after a preset time or exposure? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X	Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X	Tool or key required to open or remove access panels? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X	User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)
X		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 (Optional)

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

†Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING

Trial	Exposure (X)		Reference Effective Dose per Screening (max 25 μrem):
	"Front" Side	"Back" Side	
a	6.55 μR	7.02 μR	2.1 μrem or 0.021 μSv
b	6.75 μR	7.02 μR	
c	6.82 μR	6.95 μR	
d	6.75 μR	7.03 μR	
e	6.76 μR	6.96 μR	
AVG	6.73 μR	7.00 μR	

Energy Correction Factor: 1.25

RESULT **PASS**

BEAM QUALITY

mm Al	Exposure (X)		HVL "Front" Side	HVL "Back" Side	Conversion Factor	Min. Filtration ¹
	"Front" Side	"Back" Side				
0	1.92 μR	2.59 μR	1.0 mm Al	1.1 mm Al	0.120	1.0 mm Al
0	1.92 μR	2.52 μR				
1	0.93 μR	1.33 μR				
1.5	0.73 μR	1.06 μR				
1.5	0.73 μR	1.06 μR				

¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system.

RESULT **PASS**

Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.

Survey Worksheet - AIT X-Ray Systems

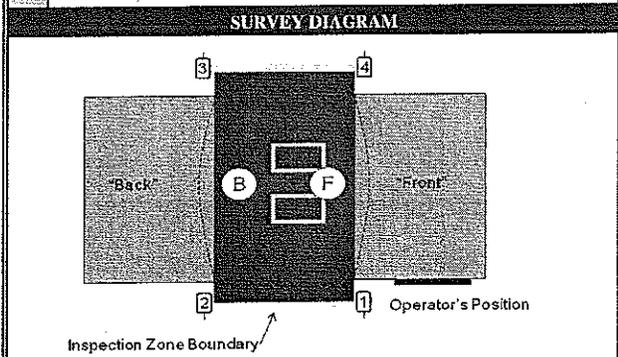
Health Physics Program
U.S. Army Public Health Command (Provisional)
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA		SURVEY LOCATION			
Project No.	26-MF-0EGD-11	Location	Terminal 4, B Side, AIT #1		
Survey Date	23 May 2011	Organization	John F. Kennedy International		
Surveyor(s)		Street Address	Van Wyck and JFK Expressway		
		City/Installation	Jamaica	State	NY

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51038004	Sep 2010
Instrument #2	Radcal	10XS-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	17 Mar 2011		

VISUAL INSPECTION			
Y	N	Requirement	Y N
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X
X		"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)	X
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	X

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 (Optional)

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

*Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING

Trial	Exposure (X)	
	"Front" Side	"Back" Side
a	5.72 μR	5.99 μR
b	5.71 μR	5.98 μR
c	5.65 μR	5.93 μR
d	5.72 μR	5.99 μR
e	5.72 μR	5.92 μR
AVG	5.70 μR	5.96 μR

Reference Effective Dose per Screening (max 25 μrem):

μrem
or
 μSv

Energy Correction Factor

RESULT

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X)	
	"Front" Side	"Back" Side
0	2.06 μR	2.06 μR
0	1.99 μR	2.06 μR
1	1.06 μR	1.06 μR
1	1.06 μR	1.13 μR
1.5	0.86 μR	0.86 μR
1.5	0.86 μR	0.86 μR

HVL "Front" Side mm Al
HVL "Back" Side mm Al
Conversion Factor
Min. Filtration¹ mm Al

¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system.

RESULT

Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.

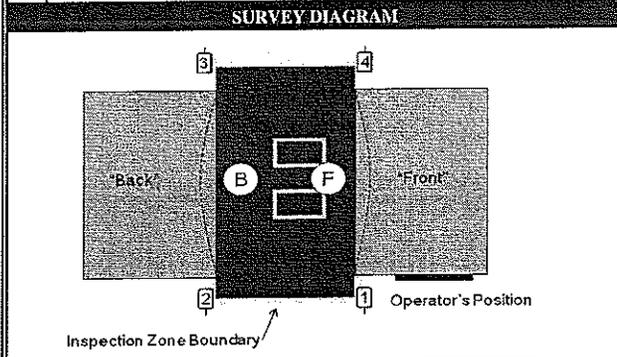
Survey Worksheet - AIT X-Ray Systems

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

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0EGD-11			Location	Terminal 4, B Side, AIT #2		
Survey Date	23 May 2011			Organization	John F. Kennedy International		
Surveyor(s)	[REDACTED]			Street Address	Van Wyck and JFK Expressway		
				City/Installation	Jamaica	State	NY

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51038008	Sep 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	17 Mar 2011		

VISUAL INSPECTION					
Y	N	Requirement	Y	N	Requirement
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"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)	X		X-ray emission terminates after a preset time or exposure? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.d)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X		Tool or key required to open or remove access panels? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)
X		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 (Optional)†

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

†Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING

Trial	Exposure (X)			
	"Front" Side		"Back" Side	
a	5.28	μR	5.59	μR
b	5.34	μR	5.59	μR
c	5.28	μR	5.61	μR
d	5.33	μR	5.54	μR
e	5.27	μR	5.59	μR
AVG	5.30	μR	5.58	μR
Energy Correction Factor	1.25			

Reference Effective Dose per Screening (max 25 μrem):
1.8 μrem
or
0.018 μSv

RESULT **PASS**

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X)			
	"Front" Side		"Back" Side	
0	2.00	μR	2.00	μR
0	2.00	μR	2.07	μR
1	1.07	μR	1.06	μR
1	1.07	μR	1.07	μR
1.5	0.87	μR	0.86	μR
1.5	0.87	μR	0.87	μR

HVL "Front" Side mm Al
HVL "Back" Side mm Al
Conversion Factor
Min. Filtration¹ mm Al

¹ A HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system.

RESULT **PASS**

Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.

Survey Worksheet - AIT X-Ray Systems

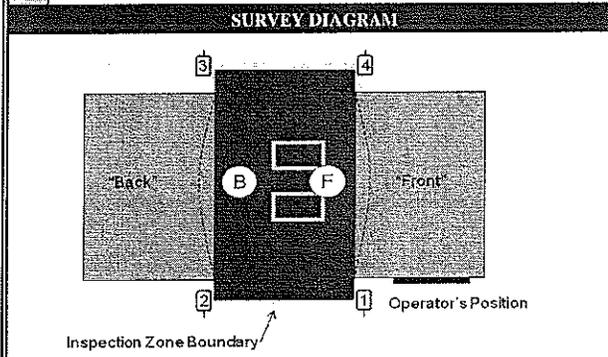
Health Physics Program
U.S. Army Public Health Command (Provisional)
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-OEGD-11			Location	Terminal 4, B Side, AIT #3		
Survey Date	23 May 2011			Organization	John F. Kennedy International		
Surveyor(s)	[REDACTED]			Street Address	Van Wyck and JFK Expressway		
	[REDACTED]			City/Installation	Jamaica	State	NY ZIP 11430

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51038009	Sep 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	17 Mar 2011		

VISUAL INSPECTION				
Y	N	Requirement	Y N	Requirement
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"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)	X	X-ray emission terminates after a preset time or exposure? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X	Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X	Tool or key required to open or remove access panels? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X	User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)
X		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 (Optional)

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

†Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING

Trial	Exposure (X)			
	"Front" Side		"Back" Side	
a	6.14	μR	5.94	μR
b	6.20	μR	5.94	μR
c	6.14	μR	6.01	μR
d	6.20	μR	6.01	μR
e	6.20	μR	5.95	μR
AVG	6.18	μR	5.97	μR
Energy Correction Factor	1.25			

Reference Effective Dose per Screening (max 25 μrem):

2.0 μrem
or
0.020 μSv

RESULT **PASS**

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X)			
	"Front" Side		"Back" Side	
0	1.99	μR	2.18	μR
0	1.98	μR	2.19	μR
1	0.99	μR	1.19	μR
1	1.06	μR	1.13	μR
1.5	0.86	μR	0.99	μR
1.5	0.79	μR	0.93	μR

HVL "Front" Side **1.1** mm Al

HVL "Back" Side **1.2** mm Al

Conversion Factor **0.127**

Min. Filtration¹ **1.0** mm Al

¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system

RESULT **PASS**

Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.

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-0EGD-11	Location Terminal 5, AIT #3-4
Survey Date 24 May 2011	Organization John F. Kennedy International
Surveyor(s)	Street Address Van Wyck and JFK Expressway
	City/Installation Jamaica State NY ZIP 11430

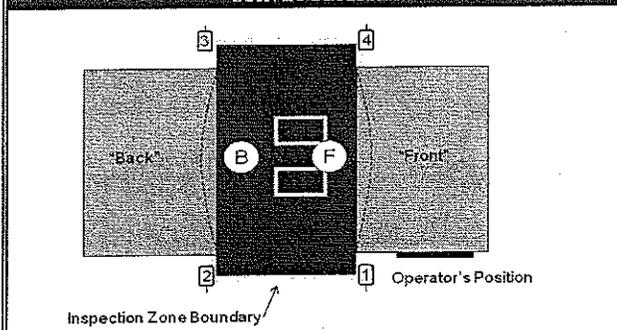
INSTRUMENTS USED SYSTEM INFORMATION

Instrument #	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S50949004	Dec 2009
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified NA	Place of Manufacture	Torrance, CA	
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	24 Mar 2011		

VISUAL INSPECTION

Y	N	Requirement	Y	N	Requirement
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"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)	X		X-ray emission terminates after a preset time or exposure? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X		Tool or key required to open or remove access panels? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)
X		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.

SURVEY DIAGRAM SCANNING MEASUREMENTS



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

Inspection zone boundary scanned with Instrument #3.

SCATTERED RADIATION (Optional)†

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

†Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING BEAM QUALITY

Trial	Exposure (X)		Reference Effective Dose per Screening (max 25 μrem):
	"Front" Side	"Back" Side	
a	6.40 μR	μR	2.0 μrem or 0.020 μSv
b	6.60 μR	μR	
c	6.53 μR	μR	
d	6.53 μR	μR	
e	6.47 μR	μR	
AVG	6.51 μR	μR	
Energy Correction Factor		1.25	

Measurements made with Instruments #1 & #2

mm Al	Exposure (X)		HVL "Front" Side	HVL "Back" Side	Conversion Factor	Min. Filtration ¹
	"Front" Side	"Back" Side				
0	2.19 μR	2.32 μR	1.1 mm Al	1.1 mm Al	0.126	1.0 mm Al
0	2.26 μR	2.25 μR				
.1	1.16 μR	1.23 μR				
1	1.16 μR	1.23 μR				
1.5	0.89 μR	0.95 μR				
1.5	0.89 μR	0.95 μR				

Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.
The system stopped working after the beam quality and "Front" Side dose per screening measurements. The Reference Effective Dose given above assumes the "Back" Side measurements are the same (both sides are usually similar).

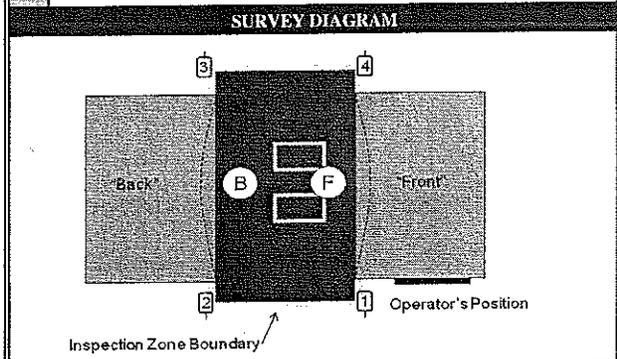
Survey Worksheet - AIT X-Ray Systems

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

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0EGD-11			Location	Terminal 5, AIT #7-8		
Survey Date	24 May 2011			Organization	John F. Kennedy International		
Surveyor(s)	[REDACTED]			Street Address	Van Wyck and JFK Expressway		
	[REDACTED]			City/Installation	Jamaica	State	NY ZIP 11430

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51018001	May 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	15 Mar 2011		

VISUAL INSPECTION					
Y	N	Requirement	Y	N	Requirement
X		Key activated control with key capture? (21 CFR 1020.31(j)); ANSI N43.17-2009, paragraph 7.2.1.c)	X		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"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)	X		X-ray emission terminates after a preset time or exposure? (21 CFR 1020.31(j)); ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j)); ANSI N43.17-2009, paragraph 7.2.2.b)	X		Operators have a clear view of the scanning area? (21 CFR 1020.31(j)); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X		Tool or key required to open or remove access panels? (21 CFR 1020.31(j)); ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X		User provided with required information? (21 CFR 1020.31(j)); ANSI N43.17-2009, paragraph 7.5)
X		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 (Optional)

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

Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING

Trial	Exposure (X)	
	"Front" Side	"Back" Side
a	6.92 μR	6.43 μR
b	6.90 μR	6.37 μR
c	6.91 μR	6.55 μR
d	6.90 μR	6.44 μR
e	6.90 μR	6.39 μR
AVG	6.91 μR	6.44 μR

Reference Effective Dose per Screening (max 25 μrem):
2.2 μrem
or
0.022 μSv

Energy Correction Factor: 1.25

RESULT: **PASS**

BEAM QUALITY

mm Al	Exposure (X)	
	"Front" Side	"Back" Side
0	2.94 μR	2.19 μR
0	2.95 μR	2.19 μR
1	1.51 μR	1.23 μR
1	1.51 μR	1.16 μR
1.5	1.23 μR	0.86 μR
1.5	1.23 μR	0.96 μR

HVL "Front" Side: 1.1 mm Al
HVL "Back" Side: 1.2 mm Al
Conversion Factor: 0.128
Min. Filtration¹: 1.0 mm Al

¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system.

RESULT: **PASS**

Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.

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-0EGD-11			Location	Terminal 5, AIT #9-10		
Survey Date	24 May 2011			Organization	John F. Kennedy International		
Surveyor(s)	[REDACTED]			Street Address	Van Wyck and JFK Expressway		
				City/Installation	Jamaica	State	NY

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51018002	May 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2600	40155	Resp Chkd*	Service Provider Survey Date	15 Mar 2011		

VISUAL INSPECTION					
Y	N	Requirement	Y	N	Requirement
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"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)	X		X-ray emission terminates after a preset time or exposure? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X		Tool or key required to open or remove access panels? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)
X		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.

SURVEY DIAGRAM	SCANNING MEASUREMENTS																									
	Scanning below action levels? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (If no, explain in comments)																									
	Inspection zone boundary scanned with Instrument #3.																									
	SCATTERED RADIATION (Optional)†																									
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Location</th> <th>Scan 1</th> <th>Scan 2</th> <th>Scan 3</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>2</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>3</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> <tr> <td>4</td> <td>μR</td> <td>μR</td> <td>μR</td> <td>μR</td> </tr> </tbody> </table>	Location	Scan 1	Scan 2	Scan 3	Average	1	μR	μR	μR	μR	2	μR	μR	μR	μR	3	μR	μR	μR	μR	4	μR	μR	μR	μR
Location	Scan 1	Scan 2	Scan 3	Average																						
1	μR	μR	μR	μR																						
2	μR	μR	μR	μR																						
3	μR	μR	μR	μR																						
4	μR	μR	μR	μR																						
	†Measurements not performed because passengers were not being screened with this system when the survey team was present.																									

DOSE PER SCREENING				BEAM QUALITY			
Exposure (X)				Exposure (X)			
Trial	"Front" Side	"Back" Side	Reference Effective Dose per Screening (max 25 μrem):	mm Al	"Front" Side	"Back" Side	HVL "Front" Side
a	6.35 μR	6.89 μR	2.1 μrem or 0.021 μSv	0	1.98 μR	2.39 μR	1.1 mm Al
b	6.23 μR	6.89 μR		0	1.98 μR	2.32 μR	1.1 mm Al
c	6.29 μR	6.95 μR		1	1.09 μR	1.23 μR	Conversion Factor
d	6.29 μR	6.89 μR		1	1.09 μR	1.23 μR	0.123
e	6.36 μR	6.95 μR		1.5	0.68 μR	1.02 μR	Min. Filtration ¹
AVG	6.30 μR	6.91 μR		1.5	0.62 μR	1.02 μR	1.0 mm Al
Energy Correction Factor	1.25			RESULT <input checked="" type="checkbox"/> PASS			

Measurements made with Instruments #1 & #2 Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.

Survey Worksheet - AIT X-Ray Systems

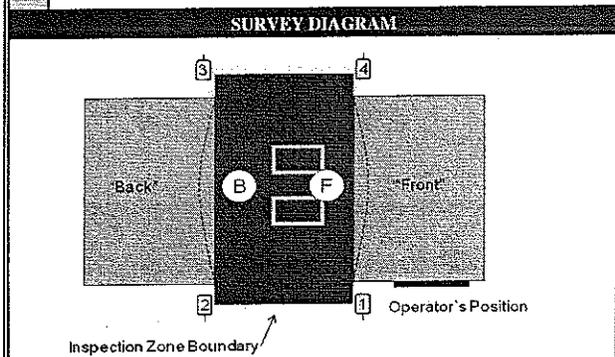
Health Physics Program
U.S. Army Public Health Command (Provisional)
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA			SURVEY LOCATION			
Project No.	26-MF-OEGD-11		Location	Terminal 5, AIT #11-12		
Survey Date	24 May 2011		Organization	John F. Kennedy International		
Surveyor(s)	[REDACTED]		Street Address	Van Wyck and JFK Expressway		
	[REDACTED]		City/Installation	Jamaica	State	NY ZIP 11430

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S50949005	Dec 2009
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	15 Mar 2011		

VISUAL INSPECTION			
Y	N	Requirement	Y/N
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X
X		"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)	X
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X
X		Scan in progress indicator visible for any location from which a scan can be initiated? (ANSI N43.17-2009, paragraph 7.2.1.a)	X

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 (Optional)

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

**Measurements not performed because passengers were not being screened with this system when the survey team was present.*

DOSE PER SCREENING

Trial	Exposure (X)	
	"Front" Side	"Back" Side
a	5.56 μR	6.08 μR
b	5.62 μR	6.08 μR
c	5.62 μR	6.16 μR
d	5.62 μR	6.15 μR
e	5.68 μR	6.09 μR
AVG	5.62 μR	6.11 μR

Reference Effective Dose per Screening (max 25 μrem):
1.8 μrem
or
0.018 μSv

Energy Correction Factor: 1.25

RESULT **PASS**

BEAM QUALITY

mm Al	Exposure (X)	
	"Front" Side	"Back" Side
0	1.70 μR	2.11 μR
0	1.63 μR	2.11 μR
1	0.89 μR	1.09 μR
1	0.82 μR	1.02 μR
1.5	0.68 μR	0.88 μR
1.5	0.75 μR	0.89 μR

HVL "Front" Side: 1.1 mm Al
HVL "Back" Side: 1.0 mm Al
Conversion Factor: 0.118
Min. Filtration¹: 1.0 mm Al

¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system.

RESULT **PASS**

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.
Access panel on slave ("Back") unit was unlocked.

Survey Worksheet - AIT X-Ray Systems

Health Physics Program

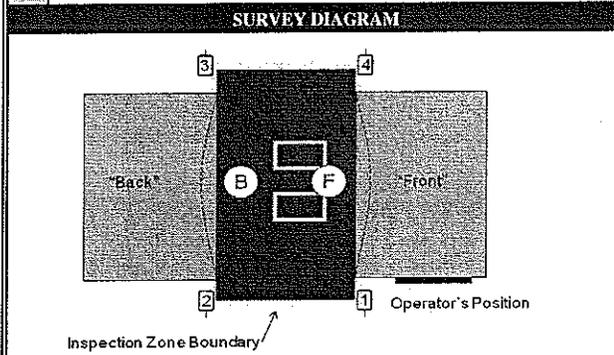
U.S. Army Public Health Command (Provisional)

Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0EGD-11			Location	Terminal 5, AIT #13-14		
Survey Date	24 May 2011			Organization	John F. Kennedy International		
Surveyor(s)	[REDACTED]			Street Address	Van Wyck and JFK Expressway		
	[REDACTED]			City/Installation	Jamaica	State	NY ZIP 11430

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S50950001	Dec 2009
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	15 Mar 2011		

VISUAL INSPECTION					
Y	N	Requirement	Y	N	Requirement
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"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)	X		X-ray emission terminates after a preset time or exposure? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X		Tool or key required to open or remove access panels? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)
X		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 (Optional)

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

¹Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING

Trial	Exposure (X)				Reference Effective Dose per Screening (max 25 μrem):
	"Front" Side		"Back" Side		
a	7.07	μR	7.04	μR	2.4 μrem or 0.024 μSv
b	7.11	μR	7.11	μR	
c	7.05	μR	6.98	μR	
d	7.07	μR	7.18	μR	
e	7.12	μR	7.06	μR	
AVG	7.08	μR	7.07	μR	
Energy Correction Factor					1.25

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X)			
	"Front" Side		"Back" Side	
0	2.93	μR	2.86	μR
0	2.93	μR	2.79	μR
1	1.80	μR	1.49	μR
1	1.80	μR	1.36	μR
1.5	1.23	μR	1.22	μR
1.5	1.16	μR	1.16	μR

HVL "Front" Side mm Al
HVL "Back" Side mm Al
Conversion Factor
Min. Filtration¹ mm Al

¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system.

RESULT PASS

Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.

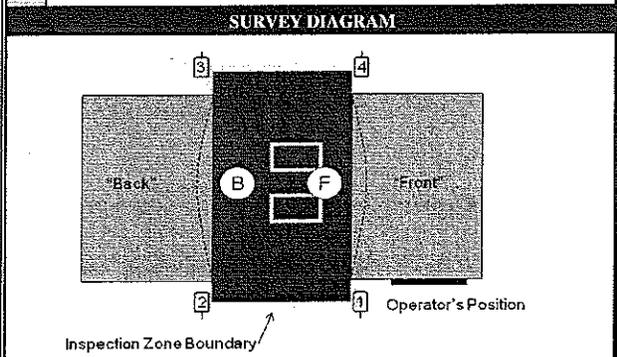
Survey Worksheet - AIT X-Ray Systems

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

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0EGD-11			Location	Terminal 5, AIT #15-16		
Survey Date	24 May 2011			Organization	John F. Kennedy International		
Surveyor(s)	[REDACTED]			Street Address	Van Wyck and JFK Expressway		
				City/Installation	Jamaica	State	NY ZIP 11430

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51030003	Aug 2010
Instrument #2	Radcal	10XS-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	15 Mar 2011		

VISUAL INSPECTION			
Y	N	Requirement	Y N
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X
X		"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)	X
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X
X		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 (Optional)

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

**Measurements not performed because passengers were not being screened with this system when the survey team was present.*

DOSE PER SCREENING

Trial	Exposure (X)		Reference Effective Dose per Screening (max 25 μrem):
	"Front" Side	"Back" Side	
a	6.31 μR	6.45 μR	2.1 μrem or 0.021 μSv
b	6.37 μR	6.58 μR	
c	6.25 μR	6.57 μR	
d	6.25 μR	6.50 μR	
e	6.26 μR	6.52 μR	
AVG	6.29 μR	6.52 μR	
Energy Correction Factor	1.25		

RESULT **PASS**

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X)		HVL "Front" Side	HVL "Back" Side	Conversion Factor	Min. Filtration ¹
	"Front" Side	"Back" Side				
0	1.70 μR	2.25 μR	1.2 mm Al	1.2 mm Al	0.131	1.0 mm Al
0	1.64 μR	2.11 μR				
1	0.89 μR	1.16 μR				
1	0.89 μR	1.16 μR				
1.5	0.75 μR	1.02 μR				
1.5	0.75 μR	0.95 μR				

¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system.

RESULT **PASS**

Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.
The access panel on the master ("Front") unit was locked, but the door would open anyway (the locking mechanism was loose).

Survey Worksheet - AIT X-Ray Systems

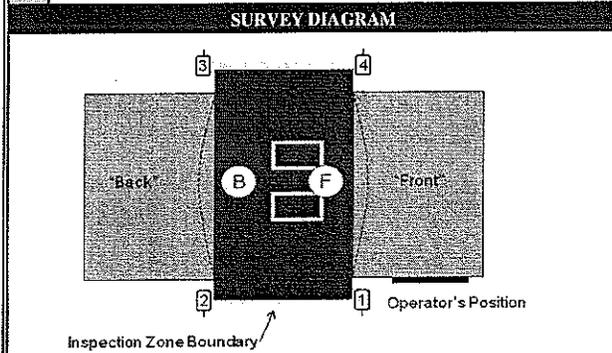
Health Physics Program
U.S. Army Public Health Command (Provisional)
Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0EGD-11			Location	Terminal 7, Main, AIT #1-2		
Survey Date	24 May 2011			Organization	John F. Kennedy International		
Surveyor(s)	[REDACTED]			Street Address	Van Wyck and JFK Expressway		
				City/Installation	Jamaica	State	NY ZIP 11430

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51038006	Sep 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	16 Mar 2011		

VISUAL INSPECTION					
Y	N	Requirement	Y	N	Requirement
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"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)	X		X-ray emission terminates after a preset time or exposure? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X		Tool or key required to open or remove access panels? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)
X		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 (Optional)†

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

†Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING

Trial	Exposure (X)		Reference Effective Dose per Screening (max 25 μrem):
	"Front" Side	"Back" Side	
a	6.05 μR	5.06 μR	1.9 μrem or 0.019 μSv
b	6.06 μR	5.06 μR	
c	6.07 μR	5.19 μR	
d	5.92 μR	5.06 μR	
e	5.99 μR	4.99 μR	
AVG	6.02 μR	5.07 μR	

Energy Correction Factor: 1.25

RESULT **PASS**

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X)		HVL "Front" Side	HVL "Back" Side	Conversion Factor	Min. Filtration ¹
	"Front" Side	"Back" Side				
0	2.39 μR	1.57 μR	1.1 mm Al	1.2 mm Al	0.128	1.0 mm Al
0	2.33 μR	1.57 μR				
1	1.23 μR	0.82 μR				
1	1.23 μR	0.82 μR				
1.5	1.03 μR	0.75 μR				
1.5	0.96 μR	0.68 μR				

¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system.

RESULT **PASS**

Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.

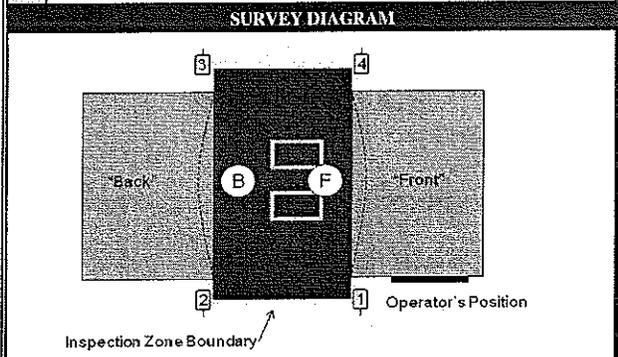
Survey Worksheet - AIT X-Ray Systems

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

SURVEY DATA		SURVEY LOCATION			
Project No.	26-MF-0EGD-11	Location	Terminal 7, Main, AIT #3-4		
Survey Date	24 May 2011	Organization	John F. Kennedy International		
Surveyor(s)		Street Address	Van Wyck and JFK Expressway		
		City/Installation	Jamaica	State	NY ZIP 11430

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51038005	Sep 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	16 Mar 2011		

VISUAL INSPECTION				
Y	N	Requirement	Requirement	
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"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)	X	X-ray emission terminates after a preset time or exposure? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X	Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X	Tool or key required to open or remove access panels? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X	User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)
X		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 (Optional)†

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

†Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING

Trial	Exposure (X)		Reference Effective Dose per Screening (max 25 μrem):
	"Front" Side	"Back" Side	
a	4.74 μR	5.08 μR	1.8 μrem or 0.018 μSv
b	4.74 μR	5.21 μR	
c	4.61 μR	5.15 μR	
d	4.68 μR	5.15 μR	
e	4.75 μR	5.15 μR	
AVG	4.70 μR	5.15 μR	
Energy Correction Factor	1.25		

RESULT **PASS**

BEAM QUALITY

mm Al	Exposure (X)		HVL "Front" Side	HVL "Back" Side	Conversion Factor	Min. Filtration ¹
	"Front" Side	"Back" Side				
0	1.85 μR	2.13 μR	1.3 mm Al	1.1 mm Al	0.142	1.0 mm Al
1	0.96 μR	1.10 μR				
1.5	0.89 μR	0.96 μR	¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system.			
1.5	0.82 μR	0.89 μR				

RESULT **PASS**

Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.

Survey Worksheet - AIT X-Ray Systems

Health Physics Program

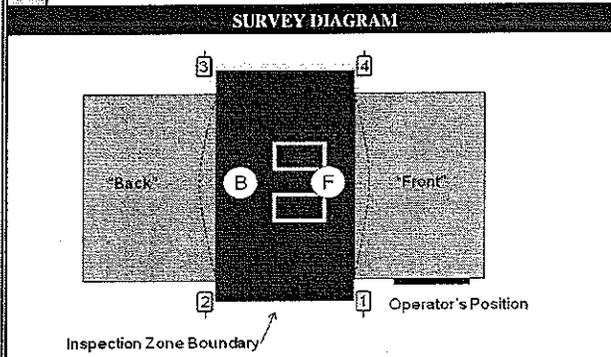
U.S. Army Public Health Command (Provisional)

Aberdeen Proving Ground, Maryland 21010-5403

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-OEGD-11			Location	Terminal 7, Main, AIT #5-6		
Survey Date	24 May 2011			Organization	John F. Kennedy International		
Surveyor(s)	[REDACTED]			Street Address	Van Wyck and JFK Expressway		
				City/Installation	Jamaica	State	NY

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51038007	Sep 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	16 Mar 2011		

VISUAL INSPECTION			
Y	N	Requirement	Y N
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X
X		"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)	X
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X
X		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 (Optional)

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

† Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING

Trial	Exposure (X)		Reference Effective Dose per Screening (max 25 μrem):
	"Front" Side	"Back" Side	
a	5.72 μR	5.61 μR	1.9 μrem or 0.019 μSv
b	5.79 μR	5.53 μR	
c	5.87 μR	5.66 μR	
d	5.80 μR	5.61 μR	
e	5.87 μR	5.53 μR	
AVG	5.81 μR	5.59 μR	
Energy Correction Factor	1.25		

RESULT PASS

BEAM QUALITY

mm Al	Exposure (X)		HVL "Front" Side	HVL "Back" Side	Conversion Factor	Min. Filtration ¹
	"Front" Side	"Back" Side				
0	2.54 μR	2.19 μR	1.2 mm Al	1.1 mm Al	0.132	1.0 mm Al
0	2.33 μR	2.19 μR				
1	1.30 μR	1.23 μR				
1	1.30 μR	1.10 μR				
1.5	1.10 μR	0.82 μR				
1.5	1.10 μR	0.89 μR				

¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system.

RESULT PASS

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.
Access panel on master (front) unit was unlocked.

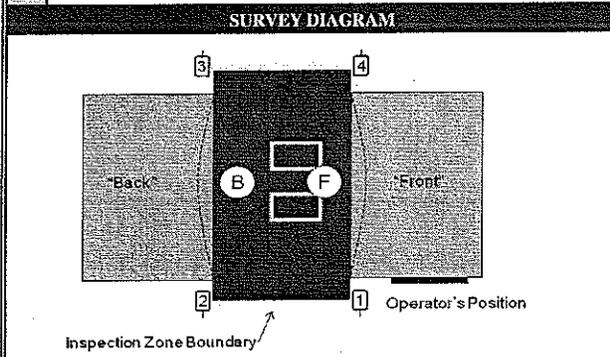
Survey Worksheet - AIT X-Ray Systems

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

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0EGD-11			Location	Terminal 8, AIT #1-2		
Survey Date	24 May 2011			Organization	John F. Kennedy International		
Surveyor(s)	[Redacted]			Street Address	Van Wyck and JFK Expressway		
				City/Installation	Jamaica	State	NY ZIP 11430

INSTRUMENTS USED				SYSTEM INFORMATION				
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51037002	Sep 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	16 Mar 2011		

VISUAL INSPECTION				
Y	N	Requirement	Requirement	
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X	At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"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)	X	X-ray emission terminates after a preset time or exposure? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X	Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X	Tool or key required to open or remove access panels? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X	User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)
X		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 (Optional)

Location	Scan 1	Scan 2	Scan 3	Average
1	0.00 μR	0.07 μR	0.13 μR	0.07 μR
2	0.00 μR	0.00 μR	0.00 μR	0.00 μR
3	0.20 μR	0.33 μR	0.33 μR	0.29 μR
4	0.00 μR	0.07 μR	0.00 μR	0.02 μR

Measurements made with Instruments #1 & #2

DOSE PER SCREENING

Trial	Exposure (X)		Reference Effective Dose per Screening (max 25 μrem):
	"Front" Side	"Back" Side	
a	6.22 μR	6.36 μR	2.0 μrem or 0.020 μSv
b	6.22 μR	6.29 μR	
c	6.29 μR	6.29 μR	
d	6.22 μR	6.36 μR	
e	6.22 μR	6.29 μR	
AVG	6.23 μR	6.32 μR	
Energy Correction Factor	1.25		

RESULT **PASS**

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X)		HVL "Front" Side	HVL "Back" Side	Conversion Factor	Min. Filtration ¹
	"Front" Side	"Back" Side				
0	2.48 μR	2.41 μR	1.2 mm Al	1.1 mm Al	0.128	1.0 mm Al
0	2.41 μR	2.41 μR				
1	1.31 μR	1.31 μR				
1	1.31 μR	1.24 μR				
1.5	1.10 μR	1.03 μR				
1.5	1.03 μR	1.03 μR				

¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system

RESULT **PASS**

Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.
The scan in progress light on the master ("Front") unit was only partially illuminating.

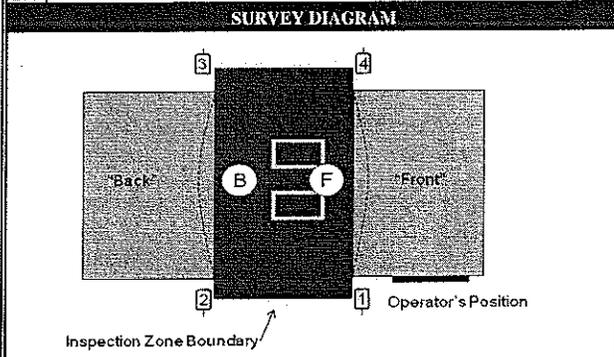
Survey Worksheet - AIT X-Ray Systems

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

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0EGD-11			Location	Terminal 8, AIT #3-4		
Survey Date	24 May 2011			Organization	John F. Kennedy International		
Surveyor(s)	[Redacted]			Street Address	Van Wyck and JFK Expressway		
	[Redacted]			City/Installation	Jamaica	State	NY ZIP 11430

INSTRUMENTS USED					SYSTEM INFORMATION			
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP		Sep 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	16 Mar 2011		

VISUAL INSPECTION			
Y	N	Requirement	Y N
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X
X		"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)	X
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X
X		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 (Optional)

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

†Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING

Trial	Exposure (X)		Reference Effective Dose per Screening (max 25 μrem):
	"Front" Side	"Back" Side	
a	6.28 μR	6.49 μR	2.1 μrem or 0.021 μSv
b	6.28 μR	6.55 μR	
c	6.28 μR	6.55 μR	
d	6.29 μR	6.55 μR	
e	6.28 μR	6.55 μR	
AVG	6.28 μR	6.54 μR	

Energy Correction Factor: 1.25

RESULT **PASS**

BEAM QUALITY

mm Al	Exposure (X)		HVL "Front" Side	HVL "Back" Side	Conversion Factor	Min. Filtration ¹
	"Front" Side	"Back" Side				
0	2.61 μR	2.54 μR	1.0 mm Al	1.2 mm Al	0.127	1 An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system
0	2.55 μR	2.47 μR				
1	1.31 μR	1.31 μR				
1	1.31 μR	1.38 μR				
1.5	1.10 μR	1.03 μR				
1.5	1.10 μR	1.10 μR				

RESULT **PASS**

Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.

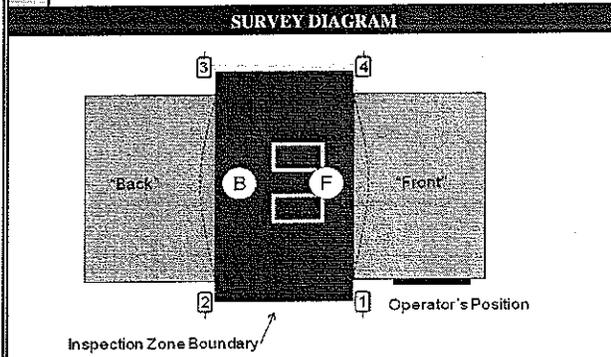
Survey Worksheet - AIT X-Ray Systems

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

SURVEY DATA				SURVEY LOCATION			
Project No.	26-MF-0EGD-11			Location	Terminal 8, AIT #5-6		
Survey Date	24 May 2011			Organization	John F. Kennedy International		
Surveyor(s)	[REDACTED]			Street Address	Van Wyck and JFK Expressway		
				City/Installation	Jamaica	State	NY ZIP 11430

INSTRUMENTS USED					SYSTEM INFORMATION			
Instrument #	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51037004	Sep 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	16 Mar 2011		

VISUAL INSPECTION			
Y	N	Requirement	Requirement
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X
X		"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)	X
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X
X		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 (Optional)

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

†Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING

Trial	Exposure (X)		Reference Effective Dose per Screening (max 25 μrem):
	"Front" Side	"Back" Side	
a	5.53 μR	6.60 μR	2.4 μrem or 0.024 μSv
b	5.53 μR	6.60 μR	
c	5.53 μR	6.66 μR	
d	5.53 μR	6.53 μR	
e	5.53 μR	6.67 μR	
AVG	5.53 μR	6.61 μR	
Energy Correction Factor	1.25		

RESULT **PASS**

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X)		HVL "Front" Side	HVL "Back" Side	Conversion Factor	Min. Filtration ¹
	"Front" Side	"Back" Side				
0	1.85 μR	2.19 μR	1.1 mm Al	1.3 mm Al	0.148	1.0 mm Al
0	1.78 μR	2.13 μR				
1	0.96 μR	1.23 μR				
1	0.96 μR	1.17 μR				
1.5	0.76 μR	1.03 μR				
1.5	0.75 μR	1.03 μR				

RESULT **PASS**

Measurements made with Instruments #1 & #2

¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.

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-0EGD-11	Location	Terminal 8, AIT #7-8
Survey Date	24 May 2011	Organization	John F. Kennedy International
Surveyor(s)		Street Address	Van Wyck and JFK Expressway
		City/Installation	Jamaica State NY ZIP 11430

INSTRUMENTS USED SYSTEM INFORMATION

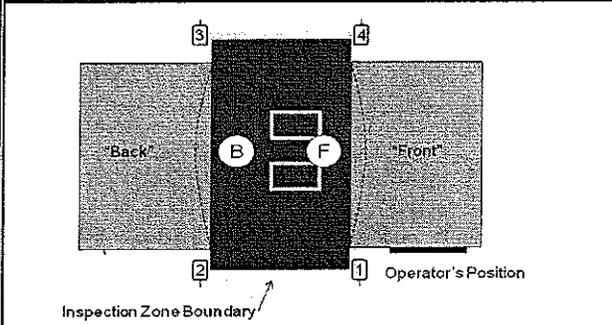
	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51037005	Sep 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	16 Mar 2011		

VISUAL INSPECTION

Y	N	Requirement	Y	N	Requirement
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"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)	X		X-ray emission terminates after a preset time or exposure? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X		Tool or key required to open or remove access panels? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)
X		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.

SURVEY DIAGRAM SCANNING MEASUREMENTS



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

Inspection zone boundary scanned with Instrument #3.

SCATTERED RADIATION (Optional)

Location	Scan 1	Scan 2	Scan 3	Average
1	0.00 μ R	0.00 μ R	0.00 μ R	0.00 μ R
2	0.00 μ R	0.00 μ R	0.00 μ R	0.00 μ R
3	0.00 μ R	0.07 μ R	0.07 μ R	0.05 μ R
4	0.00 μ R	0.00 μ R	0.00 μ R	0.00 μ R

Measurements made with Instruments #1 & #2

DOSE PER SCREENING

Trial	Exposure (X)		
	"Front" Side	"Back" Side	
a	5.06 μ R	4.93 μ R	Reference Effective Dose per Screening (max 25 μ rem): <input type="text" value="1.7"/> μ rem or <input type="text" value="0.017"/> μ Sv
b	5.20 μ R	4.93 μ R	
c	5.06 μ R	4.80 μ R	
d	5.06 μ R	4.86 μ R	
e	5.13 μ R	4.93 μ R	
AVG	5.10 μ R	4.89 μ R	
Energy Correction Factor	<input type="text" value="1.25"/>		

BEAM QUALITY

mm Al	Exposure (X)		
	"Front" Side	"Back" Side	
0	2.12 μ R	1.57 μ R	HVL "Front" Side <input type="text" value="1.1"/> mm Al HVL "Back" Side <input type="text" value="1.2"/> mm Al Conversion Factor <input type="text" value="0.135"/> Min. Filtration ¹ <input type="text" value="1.0"/> mm Al
0	2.12 μ R	1.58 μ R	
1	1.10 μ R	0.89 μ R	
1	1.10 μ R	0.89 μ R	
1.5	0.96 μ R	0.68 μ R	
1.5	0.89 μ R	0.68 μ R	

¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system

Measurements made with Instruments #1 & #2 Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.

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-OEGD-11	Location Terminal 8, AIT #9-10
Survey Date 24 May 2011	Organization John F. Kennedy International
Surveyor(s)	Street Address Van Wyck and JFK Expressway
	City/Installation Jamaica State NY ZIP 11430

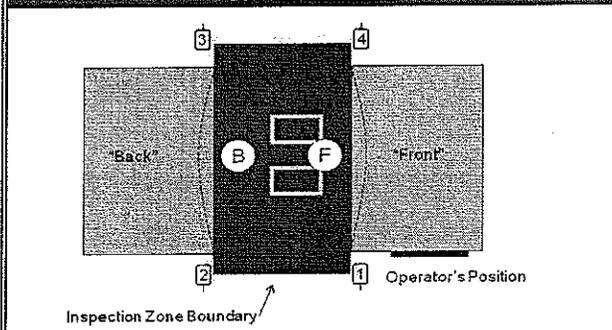
INSTRUMENTS USED SYSTEM INFORMATION

Instrument #	Manufacturer	Model	Serial No.	Cal. Due	Manufacturer	Model	Serial No.	Manuf. Date
Instrument #1	Radcal	9010	90-3290	17 Mar 2012	Rapiscan	Secure 1000SP	S51037006	Sep 2010
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012	Certified	NA	Place of Manufacture	Torrance, CA
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*	Service Provider Survey Date	16 Mar 2011		

VISUAL INSPECTION

Y	N	Requirement	Y	N	Requirement
X		Key activated control with key capture? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.c)	X		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
X		"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)	X		X-ray emission terminates after a preset time or exposure? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.e)
X		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)	X		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Means to initiate emission of radiation other than an interlock or main power control? (ANSI N43.17-2009, paragraph 7.2.1.d)	X		Tool or key required to open or remove access panels? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)	X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)
X		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.

SURVEY DIAGRAM SCANNING MEASUREMENTS



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

Inspection zone boundary scanned with Instrument #3.

SCATTERED RADIATION (Optional)*

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

*Measurements not performed because passengers were not being screened with this system when the survey team was present.

DOSE PER SCREENING BEAM QUALITY

Trial	Exposure (X)		Reference Effective Dose per Screening (max 25 μrem):
	"Front" Side	"Back" Side	
a	6.03 μR	5.18 μR	2.1 μrem or 0.021 μSv
b	5.97 μR	5.25 μR	
c	6.07 μR	5.18 μR	
d	5.90 μR	5.24 μR	
e	5.91 μR	5.24 μR	
AVG	5.98 μR	5.22 μR	
Energy Correction Factor	1.25		

mm Al	Exposure (X)		HVL "Front" Side	HVL "Back" Side	Conversion Factor	Min. Filtration ¹
	"Front" Side	"Back" Side				
0	2.60 μR	1.93 μR	1.3 mm Al	1.1 mm Al	0.141	1.0 mm Al
0	2.66 μR	1.97 μR				
1	1.44 μR	1.02 μR				
1	1.54 μR	1.02 μR				
1.5	1.23 μR	0.82 μR				
1.5	1.16 μR	0.89 μR				

¹ An HVL of 1 mm Al corresponds to a filtration of 1 mm Al for this system

Measurements made with Instruments #1 & #2

Measurements made with Instruments #1 & #2

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 23 May 2011.
The scan in progress light on the master ("Front") unit was only partially illuminating.

Survey Notes Provided on 26 May 2011

Encl 2

Survey Notes

1. Project Information.

- a. Radiation Protection Survey No. 26-MF-0EGD-11.
- b. Survey dates: 23-25 May 2011.
- c. John F. Kennedy International Airport (JFK), New York, NY.
- d. Survey Officer(s): [REDACTED]

2. Background Information.

a. TSA Headquarters Contact: Jill Segraves, Director, Occupational Safety, Health, and Environment (OSHE), phone: [REDACTED] e-mail: [REDACTED]

b. Airport Contact: Steve Doyle, Manager, JFK Coordination Center, Phone: [REDACTED]

c. Individuals assisting the survey team:

Name	Title/Position
[REDACTED]	Health Physicist, Consolidated Safety Services (CSS)
[REDACTED]	Project Manager, CSS
[REDACTED]	Safety Specialist, CSS

d. X-ray systems surveyed:

Model	Serial No.	Location
Rapiscan Secure 1000 SP	S51017015	Terminal 1, Main, AIT #1
Rapiscan Secure 1000 SP	S51017014	Terminal 1, Main, AIT #2
Rapiscan Secure 1000 SP	S51030002	Terminal 2, AIT #1
Rapiscan Secure 1000 SP	S51030003	Terminal 3, Checkpoint 123
Rapiscan Secure 1000 SP	S51011002	Terminal 3, Checkpoint 4
Rapiscan Secure 1000 SP	S50948007	Terminal 3, Customer Service
Rapiscan Secure 1000 SP	S51038004	Terminal 4, B Side, AIT #1
Rapiscan Secure 1000 SP	S51038008	Terminal 4, B Side, AIT #2
Rapiscan Secure 1000 SP	S51038009	Terminal 4, B Side, AIT #3
Rapiscan Secure 1000 SP	S50949004	Terminal 5, AIT #3-4
Rapiscan Secure 1000 SP	S51018001	Terminal 5, AIT #7-8
Rapiscan Secure 1000 SP	S51018002	Terminal 5, AIT #9-10

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Rapiscan Secure 1000 SP	S50949005	Terminal 5, AIT #11-12
Rapiscan Secure 1000 SP	S50950001	Terminal 5, AIT #13-14
Rapiscan Secure 1000 SP	S51030003	Terminal 5, AIT #15-16
Rapiscan Secure 1000 SP	S51038006	Terminal 7, Main, AIT #1-2
Rapiscan Secure 1000 SP	S51038005	Terminal 7, Main, AIT #3-4
Rapiscan Secure 1000 SP	S51038007	Terminal 7, Main, AIT #5-6
Rapiscan Secure 1000 SP	S51037002	Terminal 8, AIT #1-2
Rapiscan Secure 1000 SP	S51037003	Terminal 8, AIT #3-4
Rapiscan Secure 1000 SP	S51037004	Terminal 8, AIT #5-6
Rapiscan Secure 1000 SP	S51037005	Terminal 8, AIT #7-8
Rapiscan Secure 1000 SP	S51037006	Terminal 8, AIT #9-10

3. Findings and Recommendations.

a. All x-ray personnel screening systems were found to be in compliance with the radiation dose limits of American National Standards Institute/Health Physics Society (ANSI/HPS) Standard N43.17-2009, Radiation Safety for Personnel Security Screening Systems Using X-Ray or Gamma Radiation.

b. All systems were found to be in compliance with the other requirements of ANSI/HPS N43.17-2009.

c. The following items were also noted during the surveys:

(1) The access panel doors were not locked on the following systems:

Location	Serial No.	Unlocked Access Panel
Terminal 7, Main, AIT #5-6	S51038007	Master Side
Terminal 5, AIT #11-12	S50949005	Slave Side
Terminal 3, Checkpoint 4	S51011002	Master Side

(2) The "Scan in Progress" light was only partially illuminated on the following systems: Terminal 8, AIT #1-2 (SN S51037006) and Terminal 8, AIT #1-2 (SN S51037002).

(3) One system (Terminal 5, AIT #3-4, SN 50949004) stopped working part way through the survey. This system had been down for repair.

4. Discussion.

a. Based on dosimetry and field measurements around the Secure 1000 SP and cabinet x-ray systems, it is estimated that TSOs will receive a radiation dose of less

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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.