U.S. Department of Homeland Security
601 South 12th Street
Arlington, VA 20598-6017

Transportation Security Administration

September 9, 2011

Mr. Randy Parsons
Federal Security Director
Transportation Security Administration
Los Angeles International Airport (LAX)

Dear Mr Parsons:

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 LAX was conducted on May 16-19, 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 22 general-use backscatter x-ray AIT systems 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 N43.17-2009 standard, with one exception: The warning label "Caution: X-Rays Produced When Energized" was not present at the location where scans can be initiated on three systems identified in the first paragraph on page 2 of the attached report.

In addition, the survey officers noted five administrative items during the surveys that require attention, such as unlocked access panel doors, missing or outdated maintenance service provider's "date of survey" labels, and only partially illuminated "Scan in Progress" lights. 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 [redacted]

Sincerely,

Jill M Segraves

Jill Segraves, CSP
Director
Office of Occupational Safety, Health, and Environment

cc: Ms. Cindy Elliot, Deputy Federal Security Director
Ms. Christine Halfacre, Chief of Staff, Office of Security Technology

Enclosure: TSA LAX Radiation Protection Survey Report, dated 12 July 2011

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

12 JUL 2011

Health Physics Program

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 May 16-19 AIT Radiation Survey Visit, 10 May 2011; and American National Standards Institute/Health Physics Society (ANSI/HPS) N43.17-2009.

A radiation protection survey was performed on 16-19 May 2011 at Los Angeles International Airport (LAX), Los Angeles, CA, Project No. 26-MF-0ENW-11. The survey was performed to:

a. Evaluate the advanced imaging technology (AIT) x-ray systems to ensure compliance with the requirements of American National Standards Institute/Health Physics Society (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 Mr. [redacted] Certified Health Physicist (CHP), Health Physics Program (HPP), Army Institute of Public Health (AIPH) and [redacted] CHP, HPP, AIPH. A total of 22 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, with the following exception — The warning label "Caution: X-Rays Produced when Energized" was not present at the location where scans can be initiated on the following systems: Terminal 2, Checkpoint, Lane 1-2, SN S51013001; Terminal 5, A Checkpoint, SN S51023001; and Terminal 6, Main Checkpoint, Lane 3-4, SN S51021013.

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

a. The access panel doors were not locked on the systems provided in Enclosure 2.

b. The maintenance service provider's survey date was not posted on the following systems: Terminal 7, Main Checkpoint, Lane 3-4 (SN 51017009) and Terminal 7, A Checkpoint, Lane 8-9 (SN S51016002).

c. The maintenance service provider's survey date posted on the systems provided in Enclosure 3 was before March 2011.

d. The "Scan in Progress" light was only partially illuminated on the following systems: Terminal 2, Checkpoint, Lane 1-2 (SN S51013001) and TBIT, North Checkpoint, Lane 6 (SN S50950002).

e. The cover plate at the top of the slave unit was not installed on the system at Terminal 2, Checkpoint, Lane 3-4 (SN S51013002).

Based on dosimetry and field measurements around the Secure 1000 SP and cabinet x-ray systems, it is estimated that Transportation Security Officers (TSO) will receive a radiation dose of less than 10 millirem per year. Additional measurements using area dosimeters on four systems (Terminal 1, Main Checkpoint, Lane 3-4; Terminal 1, Main Checkpoint, Lane 5-6; Terminal 4, Main Checkpoint, Lane 3-4; Terminal 4, Main Checkpoint, Lane 5-6) are underway and will be used to further monitor potential doses. Six dosimeters were mounted on each system. The area dosimeters will be collected and sent to the dosimeter vendor in approximately two months. The number of screenings on each of the four monitored systems over this time period will be needed for the analysis

The survey officers discussed the survey results with Ms. Cindy Elliot, Deputy Federal Security Director; Ms. Theresa Emery, Administrative Officer; Mr. Michael Duretto, Transportation Security Manager; Mr. Doug Rae, Assistant Federal Security Director; Mr. Leslie Husted, Safety and Occupational Health Specialist and

Supervisory TSO Jamien Arakawa, Safety Advisor, on 19 May 2011. A copy of the survey notes is provided in Enclosure 4.

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

Sincerely,

[redacted] CIH
Portfolio Director
Occupational Health Sciences

Enclosures

Survey Results for 22 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

Project No.	26-MF-0ENW-11
Survey Date	18 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 1, Main Checkpoint, Lane 3-4				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	Model	Serial No.	Manuf. Date
Rapiscan	Secure 1000SP	S51024010	Jun 2010

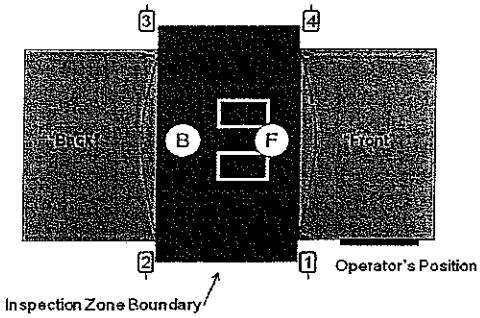
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	13 Mar 2011		

VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
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		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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	Exposure (X) "Back" Side
a	5.96 μR	6.27 μR
b	6.36 μR	6.37 μR
c	6.30 μR	6.43 μR
d	6.30 μR	6.36 μR
e	6.23 μR	6.36 μR
AVG	6.23 μR	6.36 μR

Energy Correction Factor 1.25

Reference Effective Dose per Screening (max 25 μrem):

1.91 μrem

or

0.019 μSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X) "Front" Side	Exposure (X) "Back" Side
0	1.67 μR	2.21 μR
0	1.67 μR	2.27 μR
1	0.87 μR	1.14 μR
1	0.87 μR	1.20 μR
1.5	0.67 μR	0.93 μR
1.5	0.67 μR	0.93 μR

HVL "Front" Side	1.1 mm Al
HVL "Back" Side	1.1 mm Al
Conversion Factor	0.120
Min. Filtration[1]	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 13 and 23 May 2011.
OSL Apr-Jun 2011 dosimeters 1785 to 1790 mounted on system with field IDs of 1-1 to 1-6, respectively.

Survey Worksheet - AIT X-Ray Systems

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

SURVEY DATA

Project No.	26-MF-0ENW-11
Survey Date	17 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 1, Main Checkpoint, Lane 5-6				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	Model	Serial No.	Manuf. Date
Rapiscan	Secure 1000SP	S51024011	Jun 2010

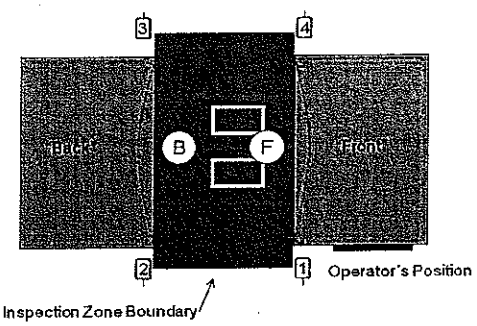
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	13 Mar 2011		

VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
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		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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	0.00	µR	0.07	µR	0.02	µR
2	0.00	µR	0.00	µR	0.00	µR	0.00	µR
3	0.00	µR	0.00	µR	0.00	µR	0.00	µR
4	0.00	µR	0.00	µR	0.00	µR	0.00	µR

Measurements made with Instruments #1 & #2

DOSE PER SCREENING

Trial	Exposure (X) "Front" Side		Exposure (X) "Back" Side	
a	6.64	µR	6.65	µR
b	6.64	µR	6.78	µR
c	6.64	µR	6.78	µR
d	6.69	µR	6.78	µR
e	6.64	µR	6.77	µR
AVG	6.65	µR	6.75	µR

Energy Correction Factor: 1.25

Reference Effective Dose per Screening (max 25 µrem): 2.29 µrem or 0.023 µSv

RESULT: PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X) "Front" Side		Exposure (X) "Back" Side	
0	1.90	µR	1.57	µR
0	1.97	µR	1.57	µR
1	1.05	µR	0.78	µR
1	1.12	µR	0.85	µR
1.5	0.85	µR	0.65	µR
1.5	0.85	µR	0.72	µR

HVL "Front" Side	1.2	mm Al
HVL "Back" Side	1.1	mm Al
Conversion Factor	0.136	
Min. Filtration[1]	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 #4 & #5

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 13 and 23 May 2011.
OSL Apr-Jun 2011 dosimeters 1791 to 1796 mounted on system with field IDs of 2-1 to 2-6, respectively.

Additional instruments used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3315	30 Jul 2011
Instrument #5	Radcal	10X5-1800	10367	30 Jul 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

Project No.	26-ME-0ENW-11
Survey Date	17 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 1, Main Checkpoint, Lane 7-8				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	Model	Serial No.	Manuf. Date
Rapiscan	Secure 1000SP	S51024012	Jun 2010

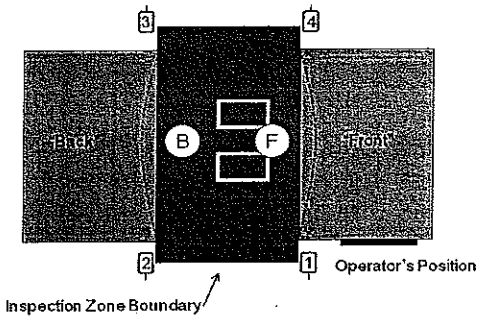
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	13 Mar 2011		

VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Tool or key required to open or remove access panels? See Note 1. (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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		Exposure (X) "Back" Side	
a	6.52	µR	7.40	µR
b	6.53	µR	7.40	µR
c	6.54	µR	7.33	µR
d	6.53	µR	7.40	µR
e	6.54	µR	7.40	µR
AVG	6.53	µR	7.39	µR

Energy Correction Factor 1.25

Reference Effective Dose per Screening (max 25 µrem):

2.21 µrem

or

0.022 µSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X) "Front" Side		Exposure (X) "Back" Side	
0	2.23	µR	2.23	µR
0	2.16	µR	2.17	µR
1	1.18	µR	1.09	µR
1	1.12	µR	1.15	µR
1.5	0.85	µR	0.98	µR
1.5	0.92	µR	0.92	µR

HVL "Front" Side	1.1	mm Al
HVL "Back" Side	1.1	mm Al
Conversion Factor	0.120	
Min. Filtration[1]	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 #4 & #5

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 13 and 23 May 2011.
Note 1: Master side access panel door unlocked.

Additional instruments used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3315	30 Jul 2011
Instrument #5	Radcal	10X5-1800	10367	30 Jul 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

Project No.	26-MF-0ENW-11
Survey Date	17 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 2, Checkpoint, Lane 1-2				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	*Model*	*Serial No.*	*Cal. Due*
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	*Model*	*Serial No.*	*Manuf. Date*
Rapiscan	Secure 1000SP	S51013001	Mar 2010

Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	11 Mar 2011		

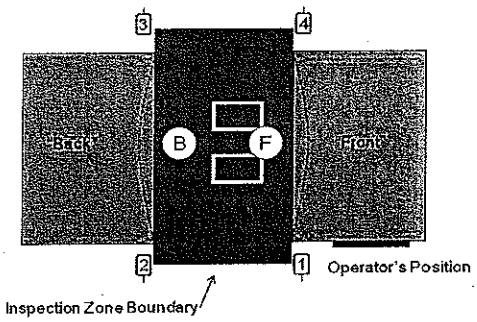
VISUAL INSPECTION

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	"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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)

Y	N	*Requirement*
X		At least one lighted scan in progress indicator visible from the inspection zone? See Note 2. (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Tool or key required to open or remove access panels? See Note 1. (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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	*Exposure (X)* "Back" Side
a	7.02 µR	6.89 µR
b	6.95 µR	6.82 µR
c	6.95 µR	6.76 µR
d	6.89 µR	6.96 µR
e	6.95 µR	6.83 µR
AVG	6.95 µR	6.85 µR

Energy Correction Factor 1.25

Reference Effective Dose per Screening (max 25 µrem):

2.31 µrem

or

0.023 µSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	*Exposure (X)* "Front" Side	*Exposure (X)* "Back" Side
0	1.90 µR	2.35 µR
0	1.77 µR	2.28 µR
1	0.98 µR	1.37 µR
1	1.05 µR	1.24 µR
1.5	0.78 µR	0.98 µR
1.5	0.78 µR	0.98 µR

HVL "Front" Side	1.2 mm Al
HVL "Back" Side	1.2 mm Al
Conversion Factor	0.133
Min. Filtration[1]	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 #4 & #5

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 13 and 23 May 2011.

Note 1: Master side access panel doors unlocked.

Note 2: Slave side "Scan in Progress" indicator partially illuminated.

Additional instruments used:

	Manufacturer	*Model*	*Serial No.*	*Cal. Due*
Instrument #4	Radcal	9010	90-3315	30 Jul 2011
Instrument #5	Radcal	10X5-1800	10367	30 Jul 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

Project No.	26-MF-0ENW-11
Survey Date	17 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 2, Checkpoint, Lane 3-4				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	Model	Serial No.	Manuf. Date
Rapiscan	Secure 1000SP	S51013002	Mar 2010

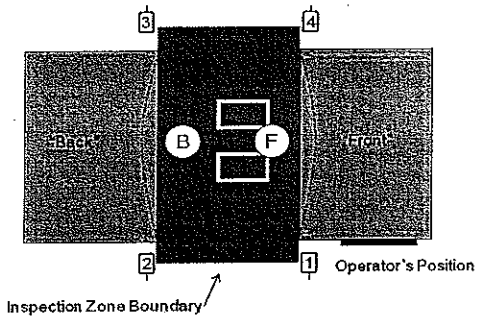
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	11 Mar 2011		

VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Tool or key required to open or remove access panels? See Note 1. (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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	0.00	µR	0.00	µR	0.00	µR
2	0.07	µR	0.00	µR	0.00	µR	0.02	µR
3	0.00	µR	0.00	µR	0.00	µR	0.00	µR
4	0.00	µR	0.00	µR	0.00	µR	0.00	µR

Measurements made with Instruments #1 & #2

DOSE PER SCREENING

Trial	Exposure (X) "Front" Side		Exposure (X) "Back" Side	
a	7.44	µR	7.17	µR
b	7.44	µR	7.09	µR
c	7.44	µR	7.17	µR
d	7.50	µR	7.11	µR
e	7.38	µR	7.10	µR
AVG	7.44	µR	7.13	µR
Energy Correction Factor	1.25			

Reference Effective Dose per Screening (max 25 µrem):

2.44 µrem

or

0.024 µSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X) "Front" Side		Exposure (X) "Back" Side	
0	2.10	µR	2.36	µR
0	2.10	µR	2.36	µR
1	1.18	µR	1.44	µR
1	1.11	µR	1.25	µR
1.5	0.85	µR	0.99	µR
1.5	0.92	µR	0.92	µR

HVL "Front" Side	1.2	mm Al
HVL "Back" Side	1.2	mm Al
Conversion Factor	0.131	
Min. Filtration[1]	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 #4 & #5

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 13 and 23 May 2011.
Note 1: Master side access panel doors unlocked.
Cover plate at the top of the slave unit was not installed.
Additional instruments used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3315	30 Jul 2011
Instrument #5	Radcal	10X5-1800	10367	30 Jul 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

Project No.	26-MF-0ENW-11
Survey Date	17 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 3, Main Checkpoint, Lane 3-4				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	*Model*	*Serial No.*	*Cal. Due*
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	*Model*	*Serial No.*	*Manuf. Date*
Rapiscan	Secure 1000SP	S51030007	Aug 2010

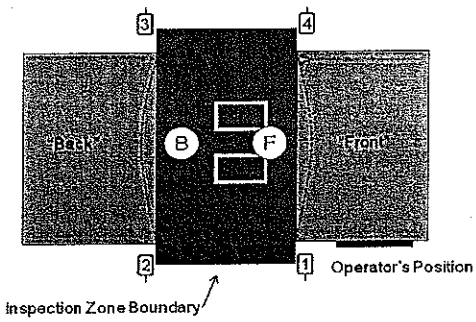
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	13 Mar 2011		

VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Tool or key required to open or remove access panels? See Note 1. (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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	0.07	µR	0.07	µR	0.07	µR	0.07	µR
2	0.00	µR	0.07	µR	0.00	µR	0.02	µR
3	0.07	µR	0.07	µR	0.00	µR	0.05	µR
4	0.13	µR	0.06	µR	0.07	µR	0.09	µR

Measurements made with Instruments #1 & #2

DOSE PER SCREENING

Trial	*Exposure (X)* "Front" Side		*Exposure (X)* "Back" Side	
a	5.66	µR	6.39	µR
b	5.79	µR	6.32	µR
c	5.78	µR	6.32	µR
d	5.85	µR	6.39	µR
e	5.85	µR	6.32	µR
AVG	5.79	µR	6.35	µR
Energy Correction Factor			1.25	

Reference Effective Dose per Screening (max 25 µrem):

1.96 µrem

or

0.020 µSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	*Exposure (X)* "Front" Side		*Exposure (X)* "Back" Side	
0	1.45	µR	2.64	µR
0	1.38	µR	2.57	µR
1	0.72	µR	1.32	µR
1	0.72	µR	1.51	µR
1.5	0.53	µR	0.98	µR
1.5	0.59	µR	1.05	µR

HVL "Front" Side	1.0	mm Al
HVL "Back" Side	1.1	mm Al
Conversion Factor	0.124	
Min. Filtration[1]	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 #4 & #5

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 13 and 23 May 2011.

Note 1: Master side access panel doors unlocked.

Additional instruments used:

	Manufacturer	*Model*	*Serial No.*	*Cal. Due*
Instrument #4	Radcal	9010	90-3315	30 Jul 2011
Instrument #5	Radcal	10X5-1800	10367	30 Jul 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

Project No.	26-MF-0ENW-11
Survey Date	17 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 3, Main Checkpoint, Lane 5-6				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	*Model*	*Serial No.*	*Cal. Due*
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	*Model*	*Serial No.*	*Manuf. Date*
Rapiscan	Secure 1000SP	S51030006	Aug 2010

Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	13 Mar 2011		

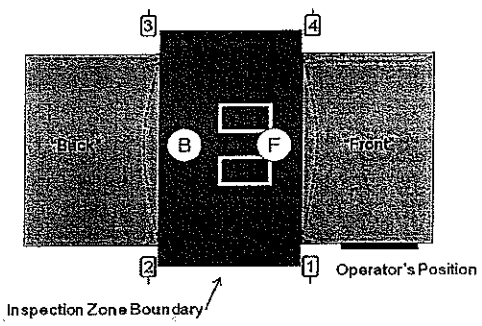
VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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)

Y	N	*Requirement*
X		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Tool or key required to open or remove access panels? See Note 1. (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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*	*Exposure (X) "Back" Side*
a	6.52 µR	6.54 µR
b	6.53 µR	6.54 µR
c	6.47 µR	6.54 µR
d	6.60 µR	6.48 µR
e	6.47 µR	6.48 µR
AVG	6.52 µR	6.52 µR
Energy Correction Factor	1.25	

Reference Effective Dose per Screening (max 25 µrem):

2.29 µrem

or

0.023 µSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	*Exposure (X) "Front" Side*	*Exposure (X) "Back" Side*
0	1.97 µR	2.10 µR
0	2.03 µR	2.04 µR
1	1.05 µR	1.18 µR
1	1.11 µR	1.11 µR
1.5	0.85 µR	0.99 µR
1.5	0.79 µR	0.92 µR

HVL "Front" Side	1.1 mm Al
HVL "Back" Side	1.3 mm Al
Conversion Factor	0.141
Min. Filtration[1]	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 #4 & #5

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 13 and 23 May 2011.
Note 1: Slave side access panel doors unlocked.

Additional instruments used:

	Manufacturer	*Model*	*Serial No.*	*Cal. Due*
Instrument #4	Radcal	9010	90-3315	30 Jul 2011
Instrument #5	Radcal	10X5-1800	10367	30 Jul 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

Project No.	26-MF-0ENW-11
Survey Date	16 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 3, A Checkpoint				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	Model	Serial No.	Manuf. Date
Rapiscan	Secure 1000SP	S51030005	May 2010

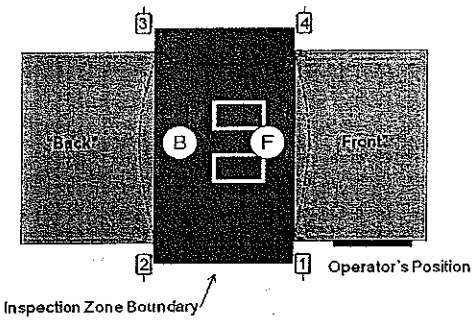
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	11 Mar 2011		

VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Tool or key required to open or remove access panels? See Note 1. (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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		Exposure (X) "Back" Side	
a	6.58	μR	6.33	μR
b	6.64	μR	6.27	μR
c	6.64	μR	6.27	μR
d	6.65	μR	6.27	μR
e	6.58	μR	6.26	μR
AVG	6.62	μR	6.28	μR

Energy Correction Factor 1.25

Reference Effective Dose per Screening (max 25 μrem):

2.31 μrem

or

0.023 μSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X) "Front" Side		Exposure (X) "Back" Side	
0	1.74	μR	2.23	μR
0	1.74	μR	2.19	μR
1	0.84	μR	1.36	μR
1	0.90	μR	1.23	μR
1.5	0.71	μR	1.03	μR
1.5	0.71	μR	0.90	μR

HVL "Front" Side	1.0	mm Al
HVL "Back" Side	1.3	mm Al
Conversion Factor	0.140	
Min. Filtration[1]	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 #4 & #5

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 13 and 23 May 2011.
Note 1: Master and slave sides access panel doors unlocked.

Additional instruments used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3315	30 Jul 2011
Instrument #5	Radcal	10X5-1800	10367	30 Jul 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

Project No.	26-MF-0ENW-11
Survey Date	17 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 4, Main Checkpoint, Lane 3-4				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	Model	Serial No.	Manuf. Date
Rapiscan	Secure 1000SP	S51013005	Mar 2010

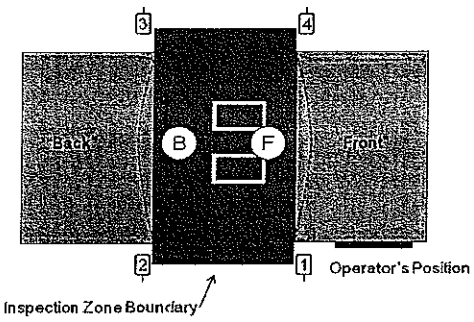
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	10 Mar 2011		

VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
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		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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		Exposure (X) "Back" Side	
a	6.15	µR	6.16	µR
b	6.16	µR	6.22	µR
c	6.28	µR	6.22	µR
d	6.14	µR	6.22	µR
e	6.15	µR	6.35	µR
AVG	6.18	µR	6.23	µR

Energy Correction Factor 1.25

Reference Effective Dose per Screening (max 25 µrem):

2.09 µrem

or

0.021 µSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X) "Front" Side		Exposure (X) "Back" Side	
0	1.84	µR	1.44	µR
0	1.84	µR	1.51	µR
1	0.92	µR	0.78	µR
1	1.05	µR	0.85	µR
1.5	0.79	µR	0.65	µR
1.5	0.79	µR	0.65	µR

HVL "Front" Side	1.2	mm Al
HVL "Back" Side	1.2	mm Al
Conversion Factor	0.134	
Min. Filtration[1]	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 #4 & #5

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 13 and 23 May 2011.
OSL Apr-Jun 2011 dosimeters 1797 to 1802 mounted on system with field IDs of 3-1 to 3-6, respectively.

Additional instruments used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3315	30 Jul 2011
Instrument #5	Radcal	10X5-1800	10367	30 Jul 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

Project No.	26-MF-0ENW-11
Survey Date	17 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 4, Main Checkpoint, Lane 5-6				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	Model	Serial No.	Manuf. Date
Rapiscan	Secure 1000SP	S51013006	Mar 2010

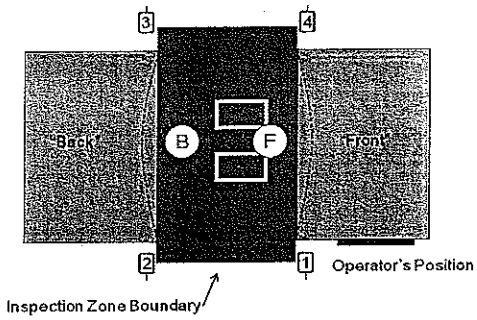
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	10 Mar 2011		

VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
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		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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		Exposure (X) "Back" Side	
a	7.22	µR	7.25	µR
b	7.23	µR	7.30	µR
c	7.29	µR	7.23	µR
d	7.23	µR	7.30	µR
e	7.37	µR	7.24	µR
AVG	7.27	µR	7.26	µR
Energy Correction Factor	1.25			

Reference Effective Dose per Screening (max 25 µrem):

2.13 µrem

or

0.021 µSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X) "Front" Side		Exposure (X) "Back" Side	
0	2.05	µR	2.70	µR
0	2.11	µR	2.77	µR
1	1.05	µR	1.38	µR
1	1.05	µR	1.45	µR
1.5	0.85	µR	1.05	µR
1.5	0.92	µR	1.12	µR

HVL "Front" Side	1.0 mm Al
HVL "Back" Side	1.1 mm Al
Conversion Factor	0.117
Min. Filtration[1]	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 #4 & #5

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 13 and 23 May 2011.
OSL Apr-Jun 2011 dosimeters 1803 to 1808 mounted on system with field IDs of 4-1 to 4-6, respectively.

Additional instruments used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3315	30 Jul 2011
Instrument #5	Radcal	10X5-1800	10367	30 Jul 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

Project No.	26-MF-0ENW-11
Survey Date	16 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 4, A Checkpoint				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	Model	Serial No.	Manuf. Date
Rapiscan	Secure 1000SP	S51013004	May 2010

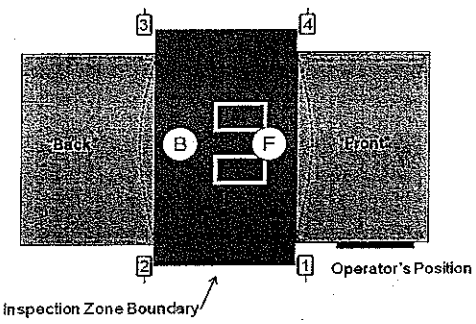
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	11 Aug 2010		

VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
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		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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		Exposure (X) "Back" Side	
a	6.06	µR	6.53	µR
b	6.25	µR	6.71	µR
c	5.85	µR	6.65	µR
d	6.43	µR	6.70	µR
e	6.44	µR	6.71	µR
AVG	6.21	µR	6.66	µR

Energy Correction Factor: 1.25

Reference Effective Dose per Screening (max 25 µrem): 2.10 µrem or 0.021 µSv

RESULT: PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X) "Front" Side		Exposure (X) "Back" Side	
0	1.56	µR	1.81	µR
0	1.49	µR	1.76	µR
1	0.78	µR	0.91	µR
1	0.78	µR	0.98	µR
1.5	0.65	µR	0.78	µR
1.5	0.65	µR	0.78	µR

HVL "Front" Side	1.1	mm Al
HVL "Back" Side	1.1	mm Al
Conversion Factor	0.126	
Min. Filtration[1]	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 #4 & #5

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 13 and 23 May 2011.

Additional instruments used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3315	30 Jul 2011
Instrument #5	Radcal	10X5-1800	10367	30 Jul 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

Project No.	26-MF-0ENW-11
Survey Date	16 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 4, A Checkpoint, Lane 7-8				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	Model	Serial No.	Manuf. Date
Rapiscan	Secure 1000SP	S51013003	Mar 2010

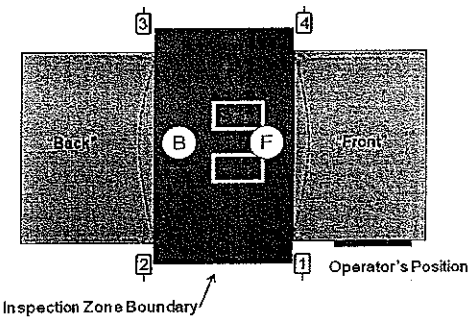
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	12 Aug 2010		

VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
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		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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		Exposure (X) "Back" Side	
a	6.60	µR	6.01	µR
b	6.52	µR	6.07	µR
c	6.53	µR	6.07	µR
d	6.53	µR	6.07	µR
e	6.52	µR	6.01	µR
AVG	6.54	µR	6.05	µR
Energy Correction Factor	1.25			

Reference Effective Dose per Screening (max 25 µrem):

2.35 µrem

or

0.024 µSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X) "Front" Side		Exposure (X) "Back" Side	
0	1.62	µR	1.69	µR
0	1.69	µR	1.76	µR
1	0.97	µR	0.91	µR
1	0.91	µR	0.98	µR
1.5	0.71	µR	0.85	µR
1.5	0.71	µR	0.78	µR

HVL "Front" Side	1.2	mm Al
HVL "Back" Side	1.3	mm Al
Conversion Factor	0.144	
Min. Filtration[1]	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 #4 & #5

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 13 and 23 May 2011.

Additional instruments used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3315	30 Jul 2011
Instrument #5	Radcal	10X5-1800	10367	30 Jul 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

Project No.	26-MF-0ENW-11
Survey Date	18 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 5, Main Checkpoint, Lane 1-2				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	Model	Serial No.	Manuf. Date
Rapiscan	Secure 1000SP	S51023002	Jun 2010

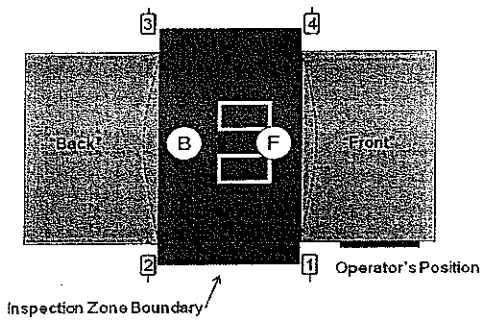
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	26 Oct 2010		

VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
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		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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		Exposure (X) "Back" Side	
a	5.67	µR	5.67	µR
b	5.94	µR	5.74	µR
c	5.94	µR	5.74	µR
d	5.94	µR	5.74	µR
e	5.94	µR	5.61	µR
AVG	5.89	µR	5.70	µR

Energy Correction Factor: 1.25

Reference Effective Dose per Screening (max 25 µrem): 1.86 µrem or 0.019 µSv

RESULT: PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X) "Front" Side		Exposure (X) "Back" Side	
0	1.40	µR	1.87	µR
0	1.40	µR	1.87	µR
1	0.73	µR	1.00	µR
1	0.73	µR	1.00	µR
1.5	0.60	µR	0.80	µR
1.5	0.60	µR	0.80	µR

HVL "Front" Side	1.1 mm Al
HVL "Back" Side	1.2 mm Al
Conversion Factor	0.127
Min. Filtration[1]	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 13 and 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

Project No.	26-MF-0ENW-11
Survey Date	17 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 5, Main Checkpoint, Lane 3-4				
Organization	Los Angeles International				
Street Address	I World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	Model	Serial No.	Manuf. Date
Rapiscan	Secure 1000SP	S51023003	Jun 2010

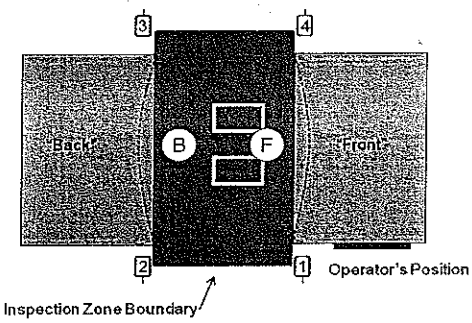
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	25 Oct 2010		

VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
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		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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		Exposure (X) "Back" Side	
a	5.89	µR	6.37	µR
b	5.89	µR	6.37	µR
c	6.02	µR	6.30	µR
d	5.96	µR	6.38	µR
e	5.89	µR	6.43	µR
AVG	5.93	µR	6.37	µR
Energy Correction Factor			1.25	

Reference Effective Dose per Screening (max 25 µrem):

1.89 µrem

or

0.019 µSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X) "Front" Side		Exposure (X) "Back" Side	
0	1.53	µR	2.19	µR
0	1.53	µR	2.20	µR
1	0.80	µR	1.13	µR
1	0.80	µR	1.13	µR
1.5	0.60	µR	0.93	µR
1.5	0.60	µR	0.93	µR

HVL "Front" Side	1.1	mm Al
HVL "Back" Side	1.1	mm Al
Conversion Factor	0.119	
Min. Filtration[1]	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 #4 & #5

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 13 and 23 May 2011.

Additional instruments used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3315	30 Jul 2011
Instrument #5	Radcal	10X5-1800	10367	30 Jul 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

Project No.	26-MF-0ENW-11
Survey Date	16 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 5, A Checkpoint				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	Model	Serial No.	Manuf. Date
Rapiscan	Secure 1000SP	S51023001	Jun 2010

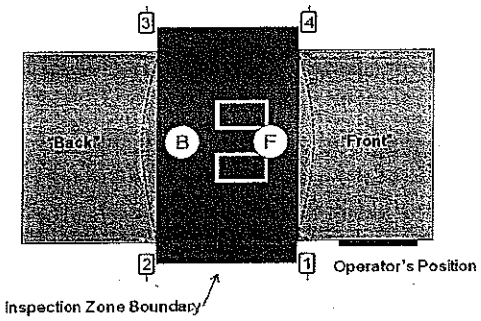
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	11 Nov 2010		

VISUAL INSPECTION

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	"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Tool or key required to open or remove access panels? See Note 1. (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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		Exposure (X) "Back" Side	
a	6.22	µR	6.16	µR
b	6.35	µR	6.16	µR
c	6.42	µR	6.09	µR
d	6.42	µR	6.16	µR
e	6.48	µR	6.23	µR
AVG	6.38	µR	6.16	µR
Energy Correction Factor	1.25			

Reference Effective Dose per Screening (max 25 µrem): 2.17 µrem or 0.022 µSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X) "Front" Side		Exposure (X) "Back" Side	
0	2.02	µR	2.02	µR
0	2.02	µR	2.02	µR
1	1.11	µR	1.17	µR
1	1.11	µR	1.04	µR
1.5	0.91	µR	0.78	µR
1.5	0.91	µR	0.91	µR

HVL "Front" Side	1.2 mm Al
HVL "Back" Side	1.2 mm Al
Conversion Factor	0.136
Min. Filtration[1]	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 #4 & #5

COMMENTS AND RECOMMENDATIONS

*Instrument was response checked on 13 and 23 May 2011.
Note 1: Master side access panel door unlocked.

Additional instruments used:

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #4	Radcal	9010	90-3315	30 Jul 2011
Instrument #5	Radcal	10X5-1800	10367	30 Jul 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

Project No.	26-MF-0ENW-11
Survey Date	17 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 6, Main Checkpoint, Lane 3-4				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	Model	Serial No.	Manuf. Date
Rapiscan	Secure 1000SP	S51021013	May 2010

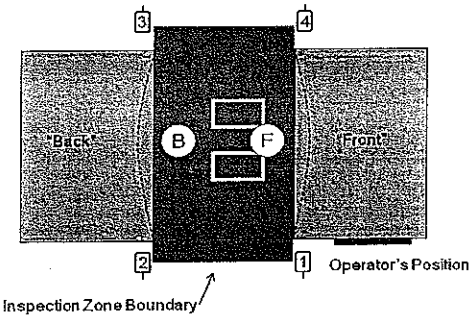
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	14 Jul 2010		

VISUAL INSPECTION

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	"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
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		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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		Exposure (X) "Back" Side	
a	6.86	µR	6.98	µR
b	6.92	µR	7.12	µR
c	6.99	µR	7.13	µR
d	6.92	µR	7.12	µR
e	6.92	µR	7.06	µR
AVG	6.92	µR	7.08	µR
Energy Correction Factor			1.25	

Reference Effective Dose per Screening (max 25 µrem):

2.16 µrem

or

0.022 µSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X) "Front" Side		Exposure (X) "Back" Side	
0	2.48	µR	2.55	µR
0	2.49	µR	2.49	µR
1	1.28	µR	1.34	µR
1	1.28	µR	1.34	µR
1.5	1.01	µR	1.01	µR
1.5	1.01	µR	1.01	µR

HVL "Front" Side	1.1 mm Al
HVL "Back" Side	1.1 mm Al
Conversion Factor	0.122
Min. Filtration[1]	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 13 and 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

Project No.	26-MF-0ENW-11
Survey Date	17 May 2011
Surveyor(s)	[redacted]
	[redacted]

SURVEY LOCATION

Location	Terminal 6, Main Checkpoint, Lane 5-6				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	*Model*	*Serial No.*	*Cal. Due*
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	*Model*	*Serial No.*	*Manuf. Date*
Rapiscan	Secure 1000SP	S51021012	May 2010

Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	12 Jul 2010		

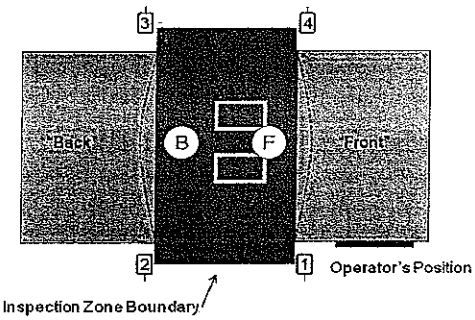
VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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)

Y	N	*Requirement*
X		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Tool or key required to open or remove access panels? See Note 1. (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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	*Exposure (X)* "Back" Side
a	6.19 µR	7.20 µR
b	7.00 µR	7.13 µR
c	7.07 µR	7.14 µR
d	7.07 µR	7.37 µR
e	7.13 µR	7.37 µR
AVG	6.89 µR	7.24 µR
Energy Correction Factor	1.25	

Reference Effective Dose per Screening (max 25 µrem):

2.33 µrem

or

0.023 µSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	*Exposure (X)* "Front" Side	*Exposure (X)* "Back" Side
0	2.14 µR	2.34 µR
0	2.14 µR	2.34 µR
1	1.07 µR	1.27 µR
1	1.07 µR	1.27 µR
1.5	0.80 µR	1.00 µR
1.5	0.80 µR	1.00 µR

HVL "Front" Side	1.0 mm Al
HVL "Back" Side	1.2 mm Al
Conversion Factor	0.129
Min. Filtration[1]	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 13 and 23 May 2011.

Note 1: Master side access panel doors 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

Project No.	26-MF-0ENW-11
Survey Date	18 May 2011
Surveyor(s)	[redacted]
	[redacted]

SURVEY LOCATION

Location	Terminal 7, Main Checkpoint, Lane 3-4				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	Model	Serial No.	Manuf. Date
Rapiscan	Secure 1000SP	S51017009	Apr 2010

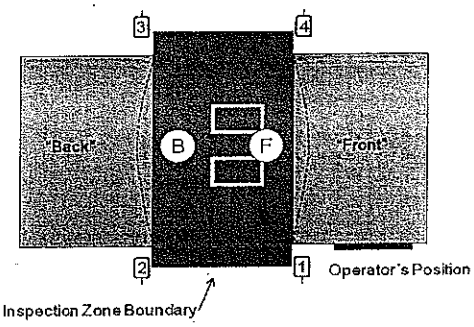
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	none found		

VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Tool or key required to open or remove access panels? See Note 1. (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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		Exposure (X) "Back" Side	
a	6.38	μR	6.58	μR
b	6.31	μR	6.58	μR
c	6.45	μR	6.51	μR
d	6.44	μR	6.58	μR
e	6.58	μR	6.51	μR
AVG	6.43	μR	6.55	μR
Energy Correction Factor			1.25	

Reference Effective Dose per Screening (max 25 μrem):

2.00 μrem

or

0.020 μSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X) "Front" Side		Exposure (X) "Back" Side	
0	2.39	μR	2.27	μR
0	2.39	μR	2.27	μR
1	1.20	μR	1.20	μR
1	1.20	μR	1.20	μR
1.5	1.00	μR	0.94	μR
1.5	1.00	μR	0.93	μR

HVL "Front" Side	1.0	mm Al
HVL "Back" Side	1.1	mm Al
Conversion Factor	0.122	
Min. Filtration[1]	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 13 and 23 May 2011.

Note 1: Slave side access panel doors 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

Project No.	26-MF-0ENW-11
Survey Date	18 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 7, A Checkpoint, Lane 8-9				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	Model	Serial No.	Manuf. Date
Rapiscan	Secure 1000SP	S51016002	Apr 2010

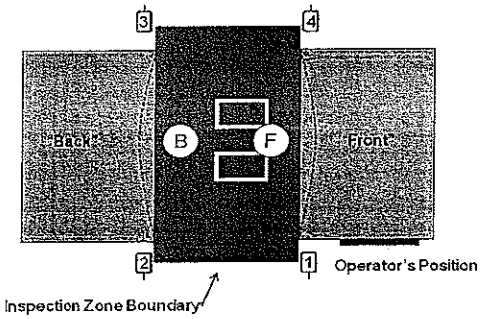
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	none found		

VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Tool or key required to open or remove access panels? See Note 1. (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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	7.03	µR	6.77	µR
b	7.17	µR	6.63	µR
c	7.10	µR	6.77	µR
d	7.04	µR	6.77	µR
e	7.17	µR	6.77	µR
AVG	7.10	µR	6.74	µR
Energy Correction Factor	1.25			

Reference Effective Dose per Screening (max 25 µrem): 2.31 µrem

or

0.023 µSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X) "Front" Side		"Back" Side	
0	2.07	µR	2.08	µR
0	2.14	µR	2.14	µR
1	1.14	µR	1.07	µR
1	1.21	µR	1.07	µR
1.5	0.87	µR	0.87	µR
1.5	0.87	µR	0.87	µR

HVL "Front" Side	1.2	mm Al
HVL "Back" Side	1.0	mm Al
Conversion Factor	0.130	
Min. Filtration[1]	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 13 and 23 May 2011.
Note 1: Slave side access panel doors 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

Project No.	26-MF-0ENW-11
Survey Date	18 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal 7, B Checkpoint, Lane 10-11				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	*Model*	*Serial No.*	*Cal. Due*
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	*Model*	*Serial No.*	*Manuf. Date*
Rapiscan	Secure 1000SP	S51016001	Apr 2010

Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	11 Mar 2011		

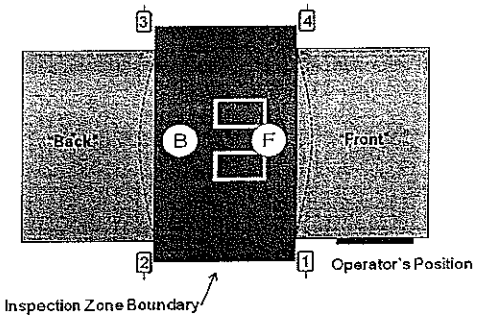
VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.c)
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)

Y	N	*Requirement*
X		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Tool or key required to open or remove access panels? See Note 1. (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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	6.82	µR	6.89	µR
b	6.82	µR	6.84	µR
c	6.76	µR	6.84	µR
d	6.82	µR	6.76	µR
e	6.82	µR	6.84	µR
AVG	6.81	µR	6.83	µR
Energy Correction Factor	1.25			

Reference Effective Dose per Screening (max 25 µrem):

2.04 µrem

or

0.020 µSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	*Exposure (X)* "Front" Side		"Back" Side	
0	2.35	µR	2.28	µR
0	2.41	µR	2.21	µR
1	1.27	µR	1.14	µR
1	1.21	µR	1.14	µR
1.5	1.01	µR	0.94	µR
1.5	0.94	µR	0.94	µR

HVL "Front" Side	1.1	mm Al
HVL "Back" Side	1.0	mm Al
Conversion Factor	0.119	
Min. Filtration[1]	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 13 and 23 May 2011.
Note 1: Slave side access panel doors 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

Project No.	26-MP-0ENW-11
Survey Date	18 May 2011
Surveyor(s)	[redacted]
	[redacted]

SURVEY LOCATION

Location	Terminal TBIT, South Checkpoint, Lane 1-2				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	*Model*	*Serial No.*	*Cal. Due*
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	*Model*	*Serial No.*	*Manuf. Date*
Rapiscan	Secure 1000SP	S50949001	Dec 2009

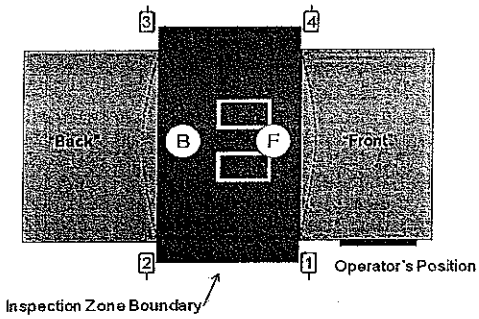
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	9 Mar 2011		

VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
X		Tool or key required to open or remove access panels? See Note 1. (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.i)
X		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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	5.45	μR	5.51	μR
b	5.37	μR	5.52	μR
c	5.50	μR	5.45	μR
d	5.50	μR	5.51	μR
e	5.52	μR	5.44	μR
AVG	5.47	μR	5.49	μR

Energy Correction Factor: 1.25

Reference Effective Dose per Screening (max 25 μrem): 1.70 μrem or 0.017 μSv

RESULT: PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	*Exposure (X)* "Front" Side		"Back" Side	
0	1.59	μR	1.67	μR
0	1.59	μR	1.66	μR
1	0.80	μR	0.93	μR
1	0.80	μR	0.86	μR
1.5	0.60	μR	0.67	μR
1.5	0.60	μR	0.67	μR

HVL "Front" Side	1.0	mm Al
HVL "Back" Side	1.1	mm Al
Conversion Factor	0.124	
Min. Filtration[1]	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 13 and 23 May 2011.
Note 1: Master side access panel doors 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

Project No.	26-MF-0ENW-11
Survey Date	18 May 2011
Surveyor(s)	[redacted]

SURVEY LOCATION

Location	Terminal TBIT, North Checkpoint, Lane 6				
Organization	Los Angeles International				
Street Address	1 World Way				
City/Installation	Los Angeles	State	CA	ZIP	90045

INSTRUMENTS USED

	Manufacturer	Model	Serial No.	Cal. Due
Instrument #1	Radcal	9010	90-3290	17 Mar 2012
Instrument #2	Radcal	10X5-1800	10302	17 Mar 2012
Instrument #3	WB Johnson	TVX-2000	40155	Resp Chkd*

SYSTEM INFORMATION

Manufacturer	Model	Serial No.	Manuf. Date
Rapiscan	Secure 1000SP	S50950002	Dec 2009

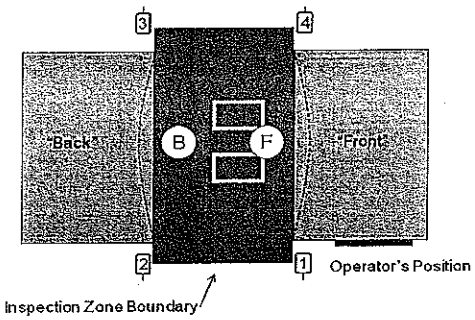
Certified	NA	*Place of Manufacture*	Torrance, CA
Service Provider Survey Date	30 Mar 2011		

VISUAL INSPECTION

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		"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		Technique factors preset for each mode of operation? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.2.b)
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		Means to terminate emission of radiation other than an interlock? (ANSI N43.17-2009, paragraph 7.2.1.e)
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		At least one lighted scan in progress indicator visible from the inspection zone? See Note 1. (ANSI N43.17-2009, paragraph 7.2.1.b)
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		Operators have a clear view of the scanning area? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.2.1.f)
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		User provided with required information? (21 CFR 1020.31(j); ANSI N43.17-2009, paragraph 7.5)

NT=not tested; NA=not applicable.

SURVEY DIAGRAM



SCANNING MEASUREMENTS

Scanning below action levels? Yes [X] 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		Exposure (X) "Back" Side	
a	7.22	μR	7.03	μR
b	7.15	μR	7.09	μR
c	7.23	μR	7.03	μR
d	7.16	μR	7.03	μR
e	7.16	μR	7.03	μR
AVG	7.18	μR	7.04	μR
Energy Correction Factor		1.25		

Reference Effective Dose per Screening (max 25 μrem):

2.26 μrem

or

0.023 μSv

RESULT PASS

Measurements made with Instruments #1 & #2

BEAM QUALITY

mm Al	Exposure (X) "Front" Side		Exposure (X) "Back" Side	
0	2.59	μR	2.26	μR
0	2.52	μR	2.19	μR
1	1.33	μR	1.19	μR
1	1.26	μR	1.20	μR
1.5	1.00	μR	0.93	μR
1.5	0.99	μR	0.93	μR

HVL "Front" Side	1.0	mm Al
HVL "Back" Side	1.1	mm Al
Conversion Factor	0.126	
Min. Filtration[1]	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 13 and 23 May 2011.

Note 1: Both master and slave side "Scan in Progress" indicators partially illuminated.

Unlocked Access Panel Door Systems

Unlocked Access Panel Door Systems:

Location	Serial No.	Unlocked Access Panel
TBIT, South Checkpoint, Lane 1-2	S50949001	Master Side
Terminal 1, Main Checkpoint, Lane 7-8	S51024012	Master Side
Terminal 2, Checkpoint, Lane 1-2	S51013001	Master Side
Terminal 2, Checkpoint, Lane 3-4	S51013002	Slave Side
Terminal 3, A Checkpoint	S51030005	Master and Slave Sides
Terminal 3, Main Checkpoint, Lane 3-4	S51030007	Master Side
Terminal 3, Main Checkpoint, Lane 5-6	S51030006	Slave Side
Terminal 5, A Checkpoint	S51023001	Master Side
Terminal 6, Main Checkpoint, Lane 5-6	S51021012	Master Side
Terminal 7, A Checkpoint, Lane 8-9	S51016002	Slave Side
Terminal 7, B Checkpoint, Lane 10-11	S51016001	Slave Side
Terminal 7, Main Checkpoint, Lane 3-4	S51017009	Slave Side

Encl 2

Maintenance Service Provider's Survey

Encl 3

Maintenance Service Provider's Survey

Location	Serial No.	Survey Date Posted
Terminal 4, A Checkpoint	S51013004	11 August 2010
Terminal 4, A Checkpoint, Lane 7-8	S51013003	12 August 2010
Terminal 5, A Checkpoint	S51023001	11 November 2010
Terminal 5, Main Checkpoint, Lane 1-2	S51023002	26 October 2010
Terminal 5, Main Checkpoint, Lane 3-4	S51023003	25 October 2010
Terminal 6, Main Checkpoint, Lane 5-6	S51021012	12 July 2010
Terminal 6, Main Checkpoint, Lane 3-4	S51021013	14 July 2010

Survey Notes Provided on 19 May 2011

Encl 4

MCHB-IP-OHP 19 May 2011

Exit Briefing Notes

1. Project Information.

   a. Radiation Protection Survey No. 26-MF-0ENW-11

   b. Survey dates: 16-18 May 2011

   c. Los Angeles International (LAX), Los Angeles, CA

   d. Survey Officer(s): [redacted] CHP and [redacted], CHP

2. Background Information.

   a. TSA Headquarters Contact: Jill Segraves, Director, Occupational Safety, Health, and Environment (OSHE), [redacted]

   b. Airport Contact: Leslie Husted, Safety and Occupational Health Specialist, Phone: [redacted]

   c. Individuals assisting the survey team:

Name	Title/Position
[redacted] CHP	Health Physicist, Consolidated Safety Services (CSS)
[redacted]	Safety Specialist, CSS
[redacted]	Certified Industrial Hygienist, CSS
Jamien Arakawa	STSO, Safety Advisor
Ashley Shorts	TSO, Safety Advisor

   d. X-ray systems surveyed:

Model	Serial No.	Location
Rapiscan Secure 1000 SP	S51030005	Terminal 3, A Checkpoint
Rapiscan Secure 1000 SP	S51013004	Terminal 4, A Checkpoint
Rapiscan Secure 1000 SP	S51013003	Terminal 4, A Checkpoint, Lane 7-8
Rapiscan Secure 1000 SP	S51023001	Terminal 5, A Checkpoint
Rapiscan Secure 1000 SP	S51024012	Terminal 1, Main Checkpoint, Lane 7-8
Rapiscan Secure 1000 SP	S51024011	Terminal 1, Main Checkpoint, Lane 5-6
Rapiscan Secure 1000 SP	S51024010	Terminal 1, Main Checkpoint, Lane 3-4
Rapiscan Secure 1000 SP	S51013001	Terminal 2, Checkpoint, Lane 1-2
Rapiscan Secure 1000 SP	S51013002	Terminal 2, Checkpoint, Lane 3-4
Rapiscan Secure 1000 SP	S51030006	Terminal 3, Main Checkpoint, Lane 5-6

Rapiscan Secure 1000 SP	S51030007	Terminal 3, Main Checkpoint, Lane 3-4
Rapiscan Secure 1000 SP	S51013005	Terminal 4, Main Checkpoint, Lane 3-4
Rapiscan Secure 1000 SP	S51013006	Terminal 4, Main Checkpoint, Lane 5-6
Rapiscan Secure 1000 SP	S51023002	Terminal 5, Main Checkpoint, Lane 1-2
Rapiscan Secure 1000 SP	S51023003	Terminal 5, Main Checkpoint, Lane 3-4
Rapiscan Secure 1000 SP	S51021012	Terminal 6, Main Checkpoint, Lane 5-6
Rapiscan Secure 1000 SP	S51021013	Terminal 6, Main Checkpoint, Lane 3-4
Rapiscan Secure 1000 SP	S50950002	TBIT, North Checkpoint, Lane 6
Rapiscan Secure 1000 SP	S50949001	TBIT, South Checkpoint, Lane 1-2
Rapiscan Secure 1000 SP	S51017009	Terminal 7, Main Checkpoint, Lane 3-4
Rapiscan Secure 1000 SP	S51016002	Terminal 7, A Checkpoint, Lane 8-9
Rapiscan Secure 1000 SP	S51016001	Terminal 7, B Checkpoint, Lane 10-11

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 with the following exception — The warning label "Caution: X-Rays Produced when Energized" was not present at the location where scans can be initiated was not present on the following systems: Terminal 2, Checkpoint, Lane 1-2, SN S51013001; Terminal 5, A Checkpoint, SN S51023001; and Terminal 6, Main Checkpoint, Lane 3-4, SN S51021013.

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
TBIT, South Checkpoint, Lane 1-2	S50949001	Master Side
Terminal 1, Main Checkpoint, Lane 7-8	S51024012	Master Side
Terminal 2, Checkpoint, Lane 1-2	S51013001	Master Side
Terminal 2, Checkpoint, Lane 3-4	S51013002	Slave Side
Terminal 3, A Checkpoint	S51030005	Master and Slave Sides
Terminal 3, Main Checkpoint, Lane 3-4	S51030007	Master Side
Terminal 3, Main Checkpoint, Lane 5-6	S51030006	Slave Side
Terminal 5, A Checkpoint	S51023001	Master Side

Terminal 6, Main Checkpoint, Lane 5-6	S51021012	Master Side
Terminal 7, A Checkpoint, Lane 8-9	S51016002	Slave Side
Terminal 7, B Checkpoint, Lane 10-11	S51016001	Slave Side
Terminal 7, Main Checkpoint, Lane 3-4	S51017009	Slave Side

(2) The maintenance service provider's survey date was not posted on the following systems: Terminal 7, Main Checkpoint, Lane 3-4 (SN 51017009) and Terminal 7, A Checkpoint, Lane 8-9 (SN S51016002).

(3) The maintenance service provider's survey date posted on the systems were before March 2011:

Location	Serial No.	Survey Date Posted
Terminal 4, A Checkpoint	S51013004	11 August 2010
Terminal 4, A Checkpoint, Lane 7-8	S51013003	12 August 2010
Terminal 5, A Checkpoint	S51023001	11 November 2010
Terminal 5, Main Checkpoint, Lane 1-2	S51023002	26 October 2010
Terminal 5, Main Checkpoint, Lane 3-4	S51023003	25 October 2010
Terminal 6, Main Checkpoint, Lane 5-6	S51021012	12 July 2010
Terminal 6, Main Checkpoint, Lane 3-4	S51021013	14 July 2010

(4) The "Scan in Progress" light was only partially illuminated on the following systems: Terminal 2, Checkpoint, Lane 1-2 (SN S51013001) and TBIT, North Checkpoint, Land 6 (SN S50950002).

(5) The cover plate at the top of the slave unit was not installed on the system at Terminal 2, Checkpoint, Lane 3-4 (SN S51013002).

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 than 10 millirem per year. Additional measurements using area dosimeters on four systems (Terminal 1, Main Checkpoint, Lane 3-4; Terminal 1, Main Checkpoint, Lane 5-6; Terminal 4, Main Checkpoint, Lane 3-4; Terminal 4, Main Checkpoint, Lane 5-6) are underway and will be used to further monitor potential doses. Six dosimeters were mounted on each system. The area dosimeters will be collected and sent to the dosimeter vendor in approximately two months. The number of screenings on each of the four monitored systems over this time period will be needed for the analysis.