MARYLAND DEPARTMENT OF THE ENVIRONMENT
1800 Washington Boulevard, Suite 750 • Baltimore Maryland 21230
(410) 537-3193 • 1-800-633-6101 • www.mde.maryland.gov

RADIOLOGICAL HEALTH PROGRAM

VETERINARY STATIONARY RADIATION MACHINE PREVENTIVE MAINTENANCE REPORT

FACILITY NAME:	**FACILITY CONTACT NAME:**	**CONTACT TELEPHONE NO.:**
FACILITY REGISTRATION NO.: ☐☐-☐☐☐☐	**Service Provider Meter Manufacturer:**	**REGISTERED SERVICE PROVIDER NAME:**
MDE MACHINE NO. AND SUFFIX: ☐☐☐☐☐/☐	**Meter Used – Model:**	**Service Provider Registration Number:**
Component Use: ☐☐	**Model Number:**	**NAME OF SERVICE PROVIDER:**
Machine Manufacturer:	**Calibration Date:**	**DATE OF SERVICE:**
Facility-Designated Room Number:	**Note any corrective services provided:**	**Date Facility Owner Made Aware of Service Findings:**
Tube Serial Number:		**Date Corrective Action Taken:**
Other information on tube serviced (optional)		***For any listed test not required by the machine manufacturer, indicate:* N/A**

As Found Settings				**Preventive Maintenance Data**	
KVP		Film Speed		PM Interval (Months)	6____ 12____ 24____ 36____
mA				Next PM Due (Date)	
Time: _____ mSec _____ Pulses				Notes:	
HVL					
Source to image distance (posted)					
Actual film size	Length	Width			

TESTING		
	KVP	**Timer**
Exp 1		
Exp 2		
Exp 3		
Avg	0.00	0.00
% Diff	0.0%	0.0%
Mfr. Spec		

Item	**Measured**
X-ray field size	Length _____ in/cm Width _____in/cm
Source to Image Distance	____.__.__ inches

Item	**Pass**	**Fail**
KVP		
Timer accuracy		
HVL		
Timer reproducibility		
Source to image distance		
X-ray Field Size		

Linearity Test			
Station	**mA**	**(mR/mAs)**	**(mR/mAs Station 1 – mR/mAs Station 2) / (mR/mAs Station 1 + mR/mAs Station 2)**
1			> 0.1 Difference = Fail ☐
2			≤ 0.1Difference = Pass ☐

X-ray Tube Voltage		**Minimum HVL**	
Designed Operating Range	**Measured Operating Potential**	**Manuf. Before June 10, 2006**	**Manuf. After June 10, 2006**
Below 51	**30**	**0.3**	**0.3**
	40	**0.4**	**0.4**
	50	**0.5**	**0.5**
51 to 70	**51**	**1.2**	**1.3**
	60	**1.3**	**1.5**
	70	**1.5**	**1.8**
Above 70	**71**	**2.1**	**2.5**
	80	**2.3**	**2.9**
	90	**2.5**	**3.2**
	100	**2.7**	**3.6**
	110	**3.0**	**3.9**
	120	**3.2**	**4.3**
	130	**3.5**	**4.7**
	140	**3.8**	**5.0**
	150	**4.1**	**5.4**

By physically and/or electronically signing this report, I attest that this radiation machine is operating within the specifications and guidelines provided by the manufacturer's manual and that the registrant has received a copy of this report for their records.

***Service Provider Initials* [ ]**

Printed Name	Registrant Signature	Date
Printed Name	Service Provider Signature	Date

Instructions for Veterinary Stationary Radiation Machine Preventative Maintenance Report

General Information

COMPLETE ONE FORM PER TUBE. Completely and legibly fill out the facility information, machine information and service provider information. Include facility room number or name as designated by the facility.

As Found Settings

Record the "as found" setting of the kVp, mA, time, half layer value, source to image distance and film size used.

Preventive Maintenance Data

Record the manufacturer's recommended preventive maintenance schedule as indicated in the radiation machine manual. If no preventive maintenance schedule exists for the machine, a 12 month maintenance frequency should be used. Record the date of the next scheduled Preventive Maintenance.

Timer Accuracy

For Certified Machine Tolerance-	**For Uncertified Machine Tolerance (+/- 10%)-**
1. Average all exposures.	1. Average all exposures.
2. Use formula- ((Average time measured – "as found" time)/ "as found" time) X 100 = % of deviation [disregard the sign].	2. Multiply the time set by .10 to get the + or – 10% variable.
3. If the % deviation is within the manufacturer's recommendation, the unit is in compliance.	3. Add the variable to the time set, and then subtract the variable from the time set. The two numbers establish the range.
4. Machine passes or fails with appropriate documentation.	4. If the average time measured falls between the two numbers, the machine is in compliance.

kVp Accuracy

For Certified Machine Tolerance-	**For Uncertified Machine Tolerance (+/- 10 %)-**
1. Average all exposures.	1. Average all exposures.
2. Use formula- ((Average kVp measured – "as found" kVp)/"as found" kVp) X 100 = % of deviation [disregard the sign].	2. Multiply the kVp set by .10 to get the + or – 10% variable.
3. If the % deviation is within the manufacturer's recommendation, the unit is in compliance.	3. Add the variable to the kVp set, and then subtract the variable from the kVp set. The two numbers establish the range.
4. Machine passes or fails with appropriate documentation.	4. If the Average kVp measured falls between the two numbers the machine is in compliance.

Other Recommended Maintenance

Consult machine manual and perform any recommended machine test not listed here. Enter results on reverse side.

Timer Reproducibility

For Certified Units:	**For Uncertified Units:**
Timer: T > 5 (Tmax – Tmin)	Timer: T > 5 (Tmax – Tmin)
1. Use the timer data from the reverse of this form (Measured and Average).	
2. Subtract the minimum time from the maximum time (Measured values).	
3. Multiply the result by the factor of 5 as shown above.	
4. Compare to the average of the measured values for time.	
5. If the average of the measured values is greater than or equal to the multiplied result, the timer is reproducible. (PASS)	

Field size – If x-ray beam exceeds any side of the image receptor by > 2% fail

SID – Measured to be within 2 inches of Indicated

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RADIOLOGICAL HEALTH PROGRAM
MENU

05. CODE PROFESSION

10 Hospital
11 Chiropractor
12 Dentist
13 Physician
14 Podiatrist
15 Radiologist
16 Industrial/Field Radiography
17 Veterinarian
18 State/Local Government
19 Education/Research
20 Portable/Mobile X-ray
21 Other

09. COMPONENT USE

CODE DENTAL

CBCT Cone Beam Computed Tomography
CD Cephalometric
CP Cephalometric/Intra-oral Comb.
CX Pan/Ceph Combination
HH Hand-held
ID Intra-oral
XD Panorex
TD TMJ Work
OD Other Dental

CODE VETERINARY

VP Veterinary Portable
VS Veterinary Stationary
VD Veterinary Dental

CODE MEDICAL

AD Angiography/Digital
AN Angiography
BD Bone Densitometry
CA CAT Scanner
CE Ceiling Tube (Leg Studies)
CH Chest, Dedicated
CI Chiropractic
DI Diathermy
GP General Purpose
HN Head and Neck
MA Mammography
MI Magnetic Imaging
OT Other Medical
PD Podiatry
PH Portable Hand Carried
PM Portable Mobile
SR Stereotactic
TO Tomography
UR Urology
US Ultrasound

CODE DARKROOM

AP Automatic Processor
DD Complete Digital Imaging
IP Insta-fix only processing
MP Manual Processing
NP No processing on-site

CODE MEDICAL THERAPY

AT Accelerator
CT Contact Therapy
DT Deep X-ray
ST Superficial

CODE INDUS/EDUC/RESEARCH

IA Accelerator
IC Cabinet Radiography
IE Electron Microscope
IF Field Radiography
IG Gauge
IN Diffraction
IO Other Indus./Educ./Research
IR Room Radiography
IS Spectrographic

CODE MEDICAL FLUOROSCOPE

AF Above Table Tube
BF Below Table Tube
CF C-Arm
MF Mobile Fluoroscope
UF Upright Fluoroscope
OF Other Medical Fluoroscope

10. CODE MANUFACTURER

00 Imagie Works
01 AS and E
02 Accuray
06 Accudex
07 Acoma
03 Agfa
08 Air Techniques
14 All Pro
04 Andrex
05 Asoma
10 Astrophysics
12 Autoclear
16 Aztech
09 Belmont
11 Bennett X-ray
13 Bowie
18 Castle
15 Continental X-ray Corp.
17 Control Screening
19 Coromex
26 de Gotzen
29 Del Medical

10. (continued)

22 Dentx
30 Dynavision
31 E.G. & G.
25 Elekta
20 Faxitron
21 Fischer Imaging Group
34 Fuji
23 Gendex
24 General Electric
35 Glenbrook
37 Global Marine
39 Golden
40 HCMI
41 Heimann
46 Heuft Systems Technik
27 Hewlett-Packard
28 Hitachi
38 Hologic
48 Hope
43 Instrumentarium
55 JEOL
32 J. Morita
33 Kodak
44 Konica
56 LG
47 Lorad
36 Lumix
49 Lunar
50 Midwest/Sybron
57 Min X-ray
61 Niton
42 OEC Diasonics
66 PANalytical
59 Panoramic Corp.
45 Phillips
60 Planmeca
70 Progeny
72 Protec
74 Rapiscan
51 Raytheon
73 Rigaku
52 Ritter
53 S.S. White
54 Sanko
78 Sedecal
79 Seiko
58 Siemens
80 Sirona
64 Soredex
81 Spectro
68 Summit
62 Toshiba
63 Transworld
71 Trophy
65 Universal
67 Varian
82 Vet Ray, Inc.
69 Weber
83 XMA
84 X-Cel
76 Yoshida
77 Other