

12.1.6. Master Dispensing Schedule

12.1.7. Master Dispensing Schedule Checked



1 MASTER DISPENSING SCHEDULE 200014 AT TIME OF CHECKING NO. ACTIVITY OF (MBq) PRODUCT VOL. (ml) REF. TIME REF. DATE ICLI USER CALIBRATOR READING (MBq) TIME CHECKED BY DOSE No. 4DP 200.0 11:0 AYR-INM 200.0 11:0 GGH-N M 229566 12:00 9.46 283 200.0 3.0 ROYAL-N M 229567 лэр 200.00 3.0 AYR-NM GGH-N M MDP 3.0 229559 \$9.47 299 200.0 3.0 ROYAL-N M 229570 METHYL DIPHOSPHONA METHYL DIPHOSPHONA METHYL DIPHOSPHONA METHYL DIPHOSPHONA INTRAVENOUS INJECTIC 200.00 MBq in 3.0 i3:00 hr on 09/11
 Topym
 229567

 MI THYL DIPHOSPHONATE
 INTELAVENUE SINKCTION

 20000
 MBq
 in
 3.0.
 ml

 Ref. Time
 12,00
 M or
 09/11/2017
 top

 Longity
 2 HOURS
 P0
 P0
 P0
017 PON Figure 10 - Master Dispensing Schedule Checked at

12.1.8. Consignor Certificate for delivery of packages



SAMPLE

Figure 11 - Consignor certificate for delivery of packages

12.1.9. Radiochemical Purity

Figure 12 - Example of Tc^{99m}-DMSA radiochemical purity at

12.1.10. Labels for transport



Figure 13 - Labels used for transport

12.1.11. Daily Clean Form (Dispensary -

SAMPLE

Figure 14 - Dispensary daily clean form at

12.1.12. Contamination Monitoring Form

SAMPLE







12.2. Imaging Acquisition and non-imaging equipment

12.2.1. Competencies Form



Figure 17 - Competency assessment form – Part 1



Figure 18 - Competency assessment form – Part 2



Figure 19 - Competency assessment form – Part 3



Figure 20 - Competency assessment form – Part 4

SAMPLE

Figure 21 - Competency assessment form – Part 5

12.3. Equipment Management System

12.3.1. Equipment Inventory System

Equipment	Name of	Model	Serial number	Year of	Year of
	manufacturer			manufacture	installation
		Ontima	00162NUC11		
Gamma camera	GE	640	HP 6600,	2013	2013
		040	6601,6602		
Commo comoro	Siomons	Symbia T	NMS0011919	2007	2007
Gamma camera	Siemens	Symbia	HP 009608	2007	2007
Popo		Horizon A	HP xxxx		
Donsitomotor	Hologics		200846	2016	2016
Densitometer		QUR series			
Isotope calibrator	Capintec	CRC-25R	253213	2015	2015
Sample counter	Wizard 3"	1480	4800615	2007	2007
Centrifuge	MSE	Centaur 2	MSE MO 627	2013	2013
Smartvent	Diagnostic	Smartuont		2005	2005
Generator	Imaging	Smartvent		2003	2003
Amercare cabinet	Amercare		A1115	2016	2016
Isotope calibrator	Capintec	CRC-25R	253373	2015	2016
	In Amercare	ene 25h	233373	2013	2010
Computing	GE	Veloris	C2C2200DC7	2012	2012
System	UL UL	Xelens	CZCZSOUDCZ	2013	2015
Computing	Nuclear	Hermes	_	2005	2005
System	Diagnostics	nemics		Updated 2015	2005
Radiation	Tracerco	PED Blue		2015	2015
Monitor	macereo			2015	2015
Radiation	Berthold				
Monitor (Wall	berthold	LB124	HP 6899	2014	2014
mounted)					
Radiation	Borthold	10172	6570	2007	2007
Monitor (wall	Bertholu	LD123	٥/٤٥	2007	2007

Table 9 - Equipment Inventory System at

mounted)					
Radiation					
Monitor (wall	Berthold	LB123	6578	2007	2007
mounted)					
Radiation					
Monitor (wall	Berthold	LB123	6578	2007	2007
mounted)					
Radiation	HandHound	RadHound	HP 5395	2012	2012
Monitor	Handhound	Radifound	11 3333	2012	2012
Radiation					
Monitor (wall	Berthold	LB123	6578	2007	2007
mounted)					
Radiation	Mini	900	5273	2011	2011
Monitor	Instruments	500	HP 5383	2011	2011
Dose Rate Meter	SmartIon		L000762	1997	1997
Theatre Probe	Navigator GPS	GPS	200412003	2004	2004
			073864228		
Theatre Probe	NeoProbe	2000	Probe: 110-	2007	2007
			02149		
Laser printer	Xerox	Phaser	WVP1//6165	2007	2007
	ACTOX	8550	W II 140105	2007	2007
Technegas	Imaging		TP 093602	2011	2011
Generator	Equipment Ltd		11 055002	2011	2011
	5	Digibase	13066788		
Uptake counter	Ortec	NAI(TI)	60013-01299-I	2013	2013
		detector			
Water Bath	Grant		80916	unknown	unknown

12.3.2. Extrinsic Uniformity

Weekly floods should be acquired following instructions given in the SOP. Each collimator is checked approx every 3 weeks.

All weekly floods should be processed on Hermes system using HQUAL programme.

A 90% square flood FOV should be used and the UFOV values recorded

					Head 1	Limits					Head 2	limits	
	п			SD %	Unif Index	Int Unif	Diff Unif			SD %	Unif Index	Int Unif	Diff Unif
LEF	1K		Lower	0.953	0.767	2.046	1.038	Γ	Lower	0.709	0.534	2.136	1.328
			Upper	1.609	1.509	4.082	2.376		Upper	2.414	2.352	4.691	2.347
Date	Operator			He	ad 1 Resu	lts				He	ad 2 Resu	ılts	
Acquired	Operator		Cnts/Pix	SD %	Unif Index	Int Unif	Diff Unif		Cnts/Pix	SD %	Unif Index	Int Unif	Diff Unif
05/01/2017	DT		29785	1.329	1.196	3.036	1.493		31395	1.447	1.332	3.584	1.939
17/01/2017	CR/AS		29781	1.38	1.252	3.22	1.58		31520	1.486	1.375	3.594	1.797
06/02/2017	AS		26257	1.463	1.327	3.849	1.885	_	23525	2 211	2.113	5.81	2.659
01/03/2017	BM/AS		33098	1.364	1.248	3.4	1.981	_	30162	2 255	2.181	5.734	2.467
27/03/2017	RSM		32063	1.418	1.303	3.693	1.621	_	30124	1.791	1.696	4.836	2.877
11/04/2017	CR		31749	1.268	1.138	2.776	1.953	_	30346	1 239	1.098	2.424	1.805
05/05/2017	AS		31201	1.441	1.325	3.89	1.675	_	30105	1.646	1.542	3.993	2.196
23/05/2017	AS		30802	1.433	1.315	3.818	1.652	_	30084	1.624	1.518	4.144	2.285
13/06/2017	AS		30595	1.399	1.277	3.861	1.688	_	30065	1.605	1.497	4.218	2.281
26/06/2017	GA-McL		30356	1.437	1.317	4.029	1.58	_	30058	1.626	1.52	4.557	2.019
04/07/2017	CR		30262	1.406	1.283	3.832	1.719	_	30045	1 578	1.468	4.153	2.031
17/07/2017	AS		30123	1.409	1.286	3.828	1.578	_	30048	1 535	1.422	3.987	2.066
28/08/2017	AL		29765	1.445	1.323	3.66	1.508		30057	1 534	1.422	4.288	2.128
18/09/2017	RSM/AS		29799	1.332	1.2	3.143	1.892		30030	1.58	1.471	4.507	2.15
09/10/2017	AS		29744	1.301	1.165	3.042	1.726	_	30159	1 557	1.446	4.481	2.086
				50 %	Head	1 Limits	Diff Unif			50 %	Head 2	2 Limits	Diff Linif
	EAP		lower	SD %	Head Unif Inde	1 Limits x Int Unif	Diff Unif		lower	SD %	Head 2 Unif Index	Limits Int Unif	Diff Unif
LI	EAP		Lower	SD % 1.152 1.400	Head Unif Inde 1.026 1.298	1 Limits x Int Unif 2.171 3.620	Diff Unif 1 371 2 267		Lower	SD % 1 399 1.631	Head 2 Unif Index 1.296 1.544	2 Limits Int Unif 2.442 4.441	Diff Unif 1.590 2.890
LI	EAP		Lower Upper	SD % 1.152 1.400	Head Unif Inde 1.026 1.298	1 Limits x Int Unif 2.171 3.620	Diff Unif 1 371 2 267		Lower Upper	SD % 1 399 1.631	Head 2 Unif Index 1.296 1.544	2 Limits Int Unif 2.442 4.441	Diff Unif 1.590 2.890
	EAP	rator	Lower Upper	SD % 1.152 1.400	Head Unif Inde 1.026 1.298 Head 1 Re	1 Limits x Int Unif 2.171 3.620 sults	Diff Unif 1 371 2 267		Lower Upper	SD % 1 399 1.631	Head 2 Unif Index 1.296 1.544	2 Limits Int Unif 2.442 4.441	Diff Unif 1.590 2.890
LI Date Acquir	EAP red Ope	rator	Lower Upper	SD % 1.152 1.400	Head Unif Inde 1.026 1.298 Head 1 Re Unif Inde	1 Limits x Int Unif 2.171 3.620 sults x Int Unif	Diff Unif 1 371 2 267 Diff Unif		Lower Upper	SD % 1 399 1.631 He SD %	Head 2 Unif Index 1.296 1.544 ead 2 Resu Unif Index	2 Limits Int Unif 2.442 4.441 Int Unif	Diff Unif 1.590 2.890 Diff Unif
Date Acquin 10/01/201	EAP red Ope	rator S	Lower Upper Cnts/Pio 35936	SD % 1.152 1.400 	Head Unif Inde 1.026 1.298 Head 1 Re Unif Inde	Limits x Int Unif 2.171 3.620 sults x Int Unif 2.819	Diff Unif 1 371 2 267 Diff Unif 1 857		Lower Upper Cnts/Pix 35912	SD % 1 399 1.631 He SD %	Head 2 Unif Index 1.296 1.544 ead 2 Resu Unif Index 1.355	2 Limits Int Unif 2.442 4.441 Int Unif 3.1	Diff Unif 1.590 2.890 Diff Unif 2.145
Date Acquir 10/01/201 02/02/201	red Ope	rator S R	Lower Upper Cnts/Pio 35936 35987 25021	SD % 1.152 1.400 	Head Unif Inde 1.026 1.298 Head 1 Re Unif Inde 1.196 1.25	1 Limits x Int Unif 2.171 3.620 sults x Int Unif 2.819 2.675 2.212	Diff Unif 1 371 2 267 Diff Unif 1 857 1 906 4 7 52		Lower Upper Cnts/Pix 35912 35925 20572	SD % 1 399 1.631 He SD % 1.454 1 388	Head 2 Unif Index 1.296 1.544 ead 2 Resu Unif Index 1.355 1.284	2 Limits Int Unif 2.442 4.441 Int Unif 3.1 2.804	Diff Unif 1.590 2.890 Diff Unif 2.145 1.981 2.27
Date Acquir 10/01/201 02/02/201 21/02/201	EAP red Ope 17 A 17 C 17 A 17 A	rator S R S M	Lower Upper Cnts/Pib 35936 35987 36097	SD % 1.152 1.400 SD % 1.307 1.356 1.43 1.43	Head Unif Inde 1.026 1.298 Head 1 Re Unif Inde 1.196 1.25 1.33	1 Limits x Int Unif 2.171 3.620 sults x x Int Unif 2.819 2.675 3.212 2.000	Diff Unif 1 371 2 267 Diff Unif 1 857 1 906 1 582 1 547		Lower Upper Cnts/Pix 35912 35925 36059 36059	SD % 1 399 1.631 He SD % 1.454 1 388 1.625 1.625	Head 2 Unif Index 1.296 1.544 ead 2 Resu Unif Index 1.355 1.284 1.538 1.538	2 Limits Int Unif 2.442 4.441 Ilts Int Unif 3.1 2.804 3.446 2.255	Diff Unif 1.590 2.890 Diff Unif 2.145 1.981 2.274 2.52
Date Acquin 10/01/201 02/02/201 21/02/201 13/03/201	red Ope 17 A 17 C 17 R 17 R 17 R	rator S R S M	Lower Upper Cnts/Pib 35936 35987 36081 36096 36076	SD % 1.152 1.400 	Head Unif Inde 1.026 1.298 Head 1 Rec Unif Inde 1.196 1.25 1.33 1.243 1.297	1 Limits x Int Unif 2.171 3.620 sults x x Int Unif 2.819 2.675 3.212 3.099 2.875 3.295	Diff Unif 1 371 2 267 Diff Unif 1 857 1 906 1 582 1 547 1 452		Lower Upper Cnts/Pix 35912 35925 36059 36050 36032	SD % 1 399 1.631 He SD % 1.454 1 388 1.625 1.68 1 598	Head 2 Unif Index 1.296 1.544 1.554 Unif Index Unif Index 1.355 1.284 1.538 1.595	2 Limits Int Unif 2.442 4.441 Ilts Int Unif 3.1 2.804 3.446 3.554 3.16	Diff Unif 1.590 2.890 Diff Unif 2.145 1.981 2.274 2.538 2.253
Date Acquit 10/01/201 02/02/201 21/02/201 13/03/201 04/04/201 04/05/201	red Ope 17 A 17 C 17 A 17 A 17 A 17 A 17 A	rator S R S M S M	Lower Upper Cnts/Pi 35936 35987 36081 36096 36076 35961	SD % 1.152 1.400 	Head Unif Inde 1.026 1.298 Head 1 Rec Unif Inde 1.196 1.25 1.33 1.249	1 Limits x Int Unif 2.171 3.620 sults x sults x sults 3.620 2.819 3.099 2.825 2.678	Diff Unif 1 371 2 267 Diff Unif 1 857 1 906 1 582 1 547 1 547 1 452 1 619		Lower Upper 35912 35925 36059 36050 36032 36025	SD % 1 399 1.631 He SD % 1.454 1 388 1.625 1.68 1.598 1.455	Head 2 Unif Index 1.296 1.544 1.544 1.355 1.284 1.358 1.598 1.508 1.356	2 Limits Int Unif 2.442 4.441 115 Int Unif 3.1 2.804 3.446 3.554 3.16 3.19	Diff Unif 1.590 2.890 Diff Unif 2.145 1.981 2.274 2.538 2.353 2.329
Date Acquin 10/01/201 02/02/201 21/02/201 13/03/201 04/04/201 18/05/201	red Ope 17 A 17 C 17 A 17 A 17 A 17 C 17 C 17 C 17 C 17 C 17 C	rator S R S M S M R	Lower Upper Cnts/Pib 35936 35987 36081 36096 36096 35961 35963	SD % 1.152 1.400 SD % 1.307 1.356 1.43 1.355 1.44 1.355 1.265	Head Unif Inde 1.026 1.298 Head 1 Re: Unif Inde 1.196 1.25 1.33 1.243 1.249 1.249 1.15	Limits x Int Unif 2.171 3.620 x Int Unif 2.819 2.675 3.212 3.099 2.825 2.678 2.131	Diff Unif 1 371 2 267 Diff Unif 1 857 1 906 1 582 1 547 1.452 1.619 1.484		Lower Upper 35912 35925 36059 36050 36032 36025 36303	SD % 1 399 1.631 He SD % 1.454 1 388 1.625 1.68 1 598 1.455 1.621	Head 2 Unif Index 1.296 1.544 Unif Index Unif Index 1.355 1.284 1.538 1.595 1.508 1.508 1.556 1.554	2 Limits Int Unif 2.442 4.441 3.1 2.804 3.446 3.554 3.16 3.19 3.351	Diff Unif 1.590 2.890 Diff Unif 2.145 1.981 2.274 2.538 2.353 2.329 2.616
Date Acquin 10/01/201 02/02/201 21/02/201 13/03/201 04/04/201 04/05/201 18/05/201 06/06/201	red Ope 17 A 17 C 17 A 17 C	rator S R S M S M R B M	Lower Upper Cnts/Pib 35936 35987 36081 36096 36076 35961 35963 35963	SD % 1.152 1.400 SD % 1.307 1.356 1.43 1.355 1.265 1.231	Head Unif Inde 1.026 1.298 Head 1 Re: Unif Inde 1.196 1.25 1.33 1.243 1.243 1.249 1.249 1.15 1.112	Limits x Int Unif 2.171 3.620 x Int Unif 2.819 2.675 3.212 3.099 2.825 2.678 2.131 2.315	Diff Unif 1 371 2 267 Diff Unif 1 857 1 906 1 582 1 547 1.452 1.619 1.484 1 347		Lower Upper 35912 35925 36059 36050 36032 36025 36303 36183	SD % 1 399 1.631 He SD % 1.454 1 388 1.625 1.68 1 598 1.455 1.621 1 568	Head 2 Unif Index 1.296 1.544 Unif Index Unif Index 1.355 1.284 1.538 1.595 1.508 1.508 1.534 1.534 1.534	2 Limits Int Unif 2.442 4.441 3.1 2.804 3.146 3.554 3.16 3.19 3.351 3.251	Diff Unif 1.590 2.890 Diff Unif 2.145 1.981 2.274 2.538 2.353 2.329 2.616 2.376
Date Acquin 10/01/201 02/02/201 13/03/201 04/04/201 04/05/201 18/05/201 18/05/201 10/07/201	red Ope 17 A 17 C 17 RS 17 B 17 C 17 B 17 C 17 B 17 C 17 T 17 T 17 T 17 T 17 T	rator S R S M S S M R R B M M M	Lower Upper 35936 35987 36081 36096 36076 35963 35963 35964 35898	SD % 1.152 1.400 SD % 1.307 1.356 1.43 1.355 1.265 1.231 1.285	Head Unif Inde 1.026 1.298 Head 1 Res Unif Inde 1.196 1.25 1.33 1.243 1.297 1.249 1.15 1.112 1.171	Limits x Int Unif 2.171 3.620 Sults x Int Unif 2.819 2.675 3.212 3.099 2.825 2.678 2.131 2.315 2.388	Diff Unif 1 371 2 267 Diff Unif 1 857 1 906 1 582 1 547 1.452 1.619 1.484 1 347 1.436		Lower Upper 35912 35925 36059 36050 36032 36025 36303 36183 36183 36080	SD % 1 399 1.631 He SD % 1.454 1 388 1.625 1.68 1 598 1.455 1.621 1.568 1 398	Head 2 Unif Index 1.296 1.544 Unif Index Unif Index 1.355 1.284 1.538 1.595 1.508 1.356 1.534 1.534 1.478 1.295	2 Limits Int Unif 2.442 4.441 JIts Int Unif 3.1 2.804 3.446 3.554 3.16 3.19 3.351 3.251 2.684	Diff Unif 1.590 2.890 Diff Unif 2.145 1.981 2.274 2.538 2.353 2.353 2.329 2.616 2.376 1.969
Date Acquii 10/01/201 02/02/201 21/02/201 13/03/201 04/04/201 04/05/201 18/05/201 18/05/201 18/05/201 21/08/201	Fred Ope 17 A 17 C 17 C 17 B 17 C 17 T 17 C 17 T 17 C 17 DW, 17 T 17 C	rator S R S M S M R R B M M /AS	Lower Upper Cnts/Pij 35936 35936 35936 35936 36076 35961 35964 35963 35904 35898 36281	SD % 1.152 1.400 SD % 1.307 1.356 1.43 1.355 1.265 1.231 1.285 1.293	Head Unif Inde 1.026 1.298 Unif Inde 1.196 1.25 1.33 1.243 1.243 1.297 1.249 1.15 1.112 1.111 1.182	1 Limits × Int Unif 2.171 3.620 Sults × Int Unif 2.819 2.675 3.212 3.099 2.825 2.678 2.131 2.315 2.388 2.612	Diff Unif 1 371 2 267 Diff Unif 1 857 1 906 1 582 1 547 1.482 1.484 1 347 1.436 1.628		Lower Upper 35912 35925 36059 36050 36032 36303 36183 36183 36080 36008	SD % 1 399 1.631 He SD % 1.454 1 388 1.625 1.68 1 598 1.455 1.621 1 568 1 398 1 553	Head 2 Unif Index 1.296 1.544 Unif Index Unif Index Unif Index 1.355 1.284 1.538 1.595 1.508 1.508 1.356 1.534 1.478 1.478 1.295 1.461	Limits Int Unif 2.442 4.441 Int Unif 3.1 2.804 3.446 3.554 3.16 3.19 3.351 3.351 3.351 2.684 3.49	Diff Unif 1.590 2.890 Diff Unif 2.145 1.981 2.274 2.538 2.353 2.329 2.616 2.376 1.969 2.38
Date Acquii 10/01/201 02/02/201 21/02/201 13/03/201 04/04/201 04/05/201 18/05/201 18/05/201 18/05/201 18/05/201 10/07/201 21/08/201 11/09/201	red Ope 17 A 17 C 17 A 17 B 17 B 17 C 17 C 17 C 17 C 17 Dw, 17 C 17 DW, 17 RS 17 NW, 17 RS 17 RS 17 A	rator S R S M S M R R B M M (AS S	Lower Upper 35936 35936 35937 36081 36096 36076 35961 35963 35904 35898 36281 35930	SD % 1.152 1.400 SD % 1.307 1.356 1.43 1.355 1.265 1.231 1.285 1.293 1.465	Head Unif Inde 1.026 1.298 Unif Inde 1.196 1.25 1.33 1.243 1.243 1.297 1.249 1.15 1.112 1.112 1.112 1.112	Limits x Int Unif 2.171 3.620 sults	Diff Unif 1 371 2 267 Diff Unif 1 857 1 906 1 582 1 547 1.484 1 347 1.484 1 347 1.436 1.628 1 594		Lower Upper 35912 35925 36059 36050 36032 36025 36303 36183 36080 36080 36080 36008	SD % 1 399 1.631 He SD % 1.454 1.454 1.454 1.625 1.68 1.598 1.455 1.621 1.568 1.398 1.553 1.523	Head 2 Unif Index 1.296 1.544 Unif Index Unif Index Unif Index 1.355 1.284 1.538 1.595 1.508 1.356 1.534 1.534 1.478 1.478 1.461 1.43	Limits Int Unif 2.442 4.441 3.1 2.804 3.10 3.554 3.16 3.19 3.351 3.351 3.351 3.251 2.684 3.49 3.184	Diff Unif 1.590 2.890 Diff Unif 2.145 1.981 2.274 2.538 2.353 2.329 2.616 2.376 1.969 2.38 2.38 2.38 2.38 2.395
Date Acquii 10/01/201 02/02/200 21/02/201 13/03/201 04/04/201 04/05/201 18/05/201 18/05/201 18/05/201 18/05/201 10/07/201 21/08/201 11/09/201 10/10/201	Fed Ope 17 A 17 C 17 A 17 C 17 A 17 C 17 A 17 C	rator S R S M S S M S M M (B M M (AS S R	Lower Upper 35936 35987 36081 36096 36076 35963 35904 35993 35904 35898 36281 35930	SD % 1.152 1.400 SD % 1.307 1.356 1.43 1.355 1.265 1.231 1.285 1.293 1.465	Head Unif Inde 1.026 1.298 Unif Inde 1.196 1.25 1.33 1.243 1.243 1.297 1.249 1.15 1.112 1.112 1.112 1.112	1 Limits Int Unif 2.171 3.620 sults x Int Unif 2.819 2.675 3.212 3.099 2.825 2.678 2.131 2.315 2.388 2.612	Diff Unif 1 371 2 267 Diff Unif 1 857 1 906 1 582 1 547 1.452 1.619 1.484 1 347 1.436 1.436 1.628 1 594		Lower Upper 35912 35925 36059 36050 36032 36032 36032 36183 36183 36080 36080 36088 36223	SD % 1 399 1.631 	Head 2 Unif Index 1.296 1.544 ead 2 Resu Unif Index 1.355 1.284 1.538 1.538 1.538 1.538 1.538 1.538 1.538 1.538 1.538 1.534 1.478 1.43	2 Limits Int Unif 2.442 4.441 3.1 2.804 3.446 3.554 3.16 3.554 3.16 3.19 3.351 3.251 2.684 3.49 3.184	Diff Unif 1.590 2.890 Diff Unif 2.145 1.981 2.274 2.538 2.353 2.329 2.616 2.376 1.969 2.38 2.095
Date Acquii 10/01/201 02/02/201 13/03/201 04/04/201 04/05/201 18/05/201 18/05/201 10/07/201 10/07/201 10/07/201 11/09/201 10/10/201 10/10/201	red Ope 17 A 17 C 17 A 17 C 17 DW 17 C	rator S S M S M S M M (BM M /AS S R (/AS	Lower Upper 35936 35987 36081 36096 36076 35961 35963 35963 35904 35898 36281 35893 36281 35930	SD % 1.152 1.400 SD % 1.307 1.356 1.43 1.35 1.44 1.355 1.231 1.285 1.293 1.465 1.293 1.447	Head Unif Inde 1.026 1.298 Head 1 Re Unif Inde 1.196 1.25 1.33 1.243 1.243 1.247 1.15 1.112 1.171 1.182 1.367	1 Limits x Int Unif 2.171 3.620 sults x x Int Unif 2.819 2.675 3.212 3.099 2.825 2.678 2.131 2.315 2.388 2.612 3.42 3.42	Diff Unif 1 371 2 267 Diff Unif 1 857 1 906 1 582 1 547 1.452 1.619 1.484 1 347 1.436 1.628 1.594		Lower Upper 35912 35925 36059 36059 36050 36032 36032 36025 36303 36183 36080 36008 36223	SD % 1 399 1.631 	Head 2 Unif Index 1.296 1.544 ead 2 Resu Unif Index 1.355 1.284 1.538 1.538 1.508 1.538 1.555 1.508 1.534 1.478 1.295 1.461 1.43	Limits Int Unif 2.442 4.441 Its Int Unif 3.1 2.804 3.16 3.151 3.251 3.251 3.184 3.272	Diff Unif 1.590 2.890 Diff Unif 2.145 1.981 2.274 2.538 2.353 2.329 2.616 2.376 1.969 2.38 2.395 3.82 2.095
Date Acquii 10/01/201 02/02/201 13/03/201 04/04/201 04/05/201 18/05/201 06/06/201 10/07/201 10/07/201 10/10/201 10/10/201 16/11/201 07/12/201	red Ope 17 A 17 C 17 C 17 A 17 C 17 A 17 C 17 RS 17 C 17 A 17 C 17 C 17 C 17 C 17 Dw, 17 C 17 A	rator S M S M S M M (BM M (AS S R (/AS S S R	Lower Upper 35936 35987 36081 36096 36076 35961 35963 35964 35963 35904 35898 36281 35930 36010 35940	SD % 1.152 1.400 SD % 1.307 1.356 1.43 1.35 1.44 1.355 1.265 1.231 1.285 1.293 1.465 1.447 1.495	Head Unif Inde 1.026 1.298 Head 1 Re Unif Inde 1.196 1.25 1.33 1.243 1.243 1.247 1.15 1.112 1.171 1.182 1.367	1 Limits × Int Unif 2.171 3.620 3.620 111 2.819 2.675 3.212 3.099 2.825 2.678 2.131 2.315 2.388 2.612 3.422 3.42 2.709 2.985	Diff Unif 1 371 2 267 Diff Unif 1 857 1 906 1 582 1 547 1.452 1.619 1.484 1 347 1.436 1.628 1.628 1 594 		Lower Upper 35912 35925 36059 36059 36059 36050 36032 36025 36303 36183 36080 36008 36008 36223	SD % 1 399 1.631 	Head 2 Unif Index 1.296 1.544 2 Rest Unif Index 1.355 1.284 1.538 1.538 1.508 1.538 1.508 1.534 1.534 1.478 1.295 1.461 1.43	2 Limits Int Unif 2.442 4.441 3.1 2.804 3.10 3.554 3.16 3.554 3.16 3.554 3.19 3.351 3.251 2.684 3.184 3.184	Diff Unif 1.590 2.890 Diff Unif 2.145 1.981 2.274 2.538 2.353 2.329 2.616 2.376 1.969 2.38 2.095 1.853 1.814
Date Acquii 10/01/201 02/02/201 13/03/201 04/04/201 04/05/201 18/05/201 06/06/201 10/07/201 121/08/201 10/10/201 10/10/201 16/11/201 07/12/201 28/12/201	red Ope 17 A 17 C 17 C 17 A 17 C 17 C 17 A 17 C 17 A 17 C 17 C 17 C 17 Dw, 17 DW 17 C 17 A 17 A 17 A 17 A 17 C	rator S R S M S S M K K M Z S R Z Z S R Z Z Z S T M	Lower Upper 35936 35987 36081 36096 36076 35961 35963 35964 35963 35904 35898 36281 35930 36010 35940 35940 35913	SD % 1.152 1.400 5D % 1.307 1.356 1.43 1.355 1.44 1.355 1.265 1.231 1.285 1.293 1.465 1.293 1.447 1.495 1.533	Head Unif Inde 1.026 1.298 Head 1 Re Unif Inde 1.196 1.25 1.33 1.247 1.15 1.112 1.171 1.182 1.367 1.347 1.399 1.44	1 Limits x Int Unif 2.171 3.620 3.620 2.819 2.675 3.212 3.099 2.825 2.678 2.131 2.315 2.382 2.315 2.382 2.672 3.42 2.709 2.985 3.339 3.339	Diff Unif 1 371 2 267 Diff Unif 1 857 1 906 1 582 1 547 1.452 1.619 1.484 1 347 1.436 1.628 1 594 		Lower Upper 35912 35925 36059 36059 36050 36032 36025 36303 36183 36080 36008 36028 36223 36007 36033 36048	SD % 1 399 1.631 	Head 2 Unif Index 1.296 2.296 2.296 2.296 2.508 1.355 1.284 1.538 1.538 1.538 1.538 1.538 1.508 1.536 1.534 1.478 1.295 1.461 1.43 2.297 1.254	2 Limits Int Unif 2.442 4.441 3.1 3.1 3.1 3.254 3.446 3.554 3.16 3.554 3.16 3.554 3.16 3.554 3.19 3.351 2.684 3.49 3.184 3.184	Diff Unif 1.590 2.890 Diff Unif 2.145 1.981 2.274 2.538 2.353 2.329 2.616 2.376 1.969 2.38 2.376 1.969 2.38 2.095 1.853 1.814 1.937
Date Acquii 10/01/201 02/02/201 13/03/201 04/04/201 04/05/201 18/05/201 06/06/201 10/07/201 21/08/201 10/10/201 10/10/201 16/11/201 07/12/201 28/12/201	red Ope 17 A 17 C 17 C 17 C 17 C 17 S 17 C 17 S 17 C 17 A 17 C 17 DW 17 A 17 A 17 A 17 C 17 A 17 C 17 D	rator S R S M S S M K K K K K K K K K K K K K K K	Lower Upper 35936 35987 36081 36096 36076 35961 35963 35964 35963 35904 35898 36281 35930 36010 35940 35913	SD % 1.152 1.400 SD % 1.307 1.356 1.43 1.355 1.265 1.231 1.285 1.293 1.465 1.293 1.447 1.495 1.533	Head Unif Inde 1.026 1.298 Head 1 Re Unif Inde 1.196 1.25 1.33 1.249 1.15 1.112 1.171 1.182 1.367 1.347 1.399 1.44	1 Limits x Int Unif 2.171 3.620 sults x sults 1.101/16 2.819 2.675 3.212 3.099 2.825 2.678 2.131 2.315 2.388 2.612 3.42 3.42 2.709 2.985 3.339 3.339	Diff Unif 1 371 2 267 Diff Unif 1 857 1 906 1 582 1 547 1.452 1.619 1.484 1 347 1.436 1.628 1 594 		Lower Upper 35912 35925 36059 36059 36050 36032 36025 36303 36183 36080 36008 36008 36023 36007 36033 36048	SD % 1 399 1.631 	Head 2 Unif Index 1.296 1.544 Unif Index 1.555 1.284 1.538 1.538 1.595 1.508 1.356 1.534 1.478 1.295 1.461 1.43 1.43	2 Limits Int Unif 2.442 4.441 3.1 3.1 3.2804 3.446 3.554 3.16 3.19 3.351 3.251 2.684 3.19 3.351 3.251 2.684 3.49 3.184	Diff Unif 1.590 2.890 Diff Unif 2.145 1.981 2.274 2.538 2.353 2.329 2.616 2.376 1.969 2.38 2.376 1.969 2.38 2.095 1.853 1.814 1.937
Date Acquii 10/01/201 02/02/201 13/03/201 04/04/201 04/05/201 18/05/201 06/06/201 10/07/201 121/08/201 10/10/201 10/10/201 16/11/201 07/12/201	red Ope 17 A 17 C 17 C 17 A 17 C 17 A 17 C 17 A 17 C 17 A 17 C 17 Dw, 17 C 17 DW 17 A 17 C 17 DW 17 C 17 DW 17 C 17 DW 17 DW 17 C 17 DW 17 DW	rator S R S M S S M K K K K K K K K K K K K K K K	Lower Upper 35936 35987 36081 36096 36076 35961 35963 35964 35963 35904 35898 36281 35930 36010 35940 35913	SD % 1.152 1.400 SD % 1.307 1.356 1.43 1.355 1.265 1.231 1.285 1.293 1.465 1.293 1.447 1.495 1.533	Head Unif Inde 1.026 1.298 Head 1 Re Unif Inde 1.196 1.25 1.33 1.249 1.15 1.112 1.171 1.182 1.367 1.347 1.399 1.44	1 Limits x Int Unif 2.171 3.620 sults x sults 1.101/16 2.819 2.675 3.212 3.099 2.825 2.678 2.131 2.315 2.388 2.612 3.42 2.709 2.985 3.339	Diff Unif 1 371 2 267 Diff Unif 1 857 1 906 1 582 1 547 1.452 1.619 1.484 1 347 1.436 1.628 1 594 1.779 1.761 1 828		Lower Upper 35912 35925 36059 36059 36050 36032 36025 36303 36183 36080 36008 36023 36008 36023 36008 36023	SD % 1 399 1.631 	Head 2 Unif Index 1.296 1.544 Unif Index 1.544 1.538 1.284 1.538 1.508 1.508 1.508 1.508 1.508 1.508 1.508 1.534 1.478 1.295 1.461 1.43 1.43	2 Limits Int Unif 2.442 4.441 3.1 3.1 3.2804 3.446 3.554 3.16 3.19 3.351 3.251 2.684 3.19 3.351 3.251 2.684 3.49 3.184	Diff Unif 1.590 2.890 Diff Unif 2.145 1.981 2.274 2.538 2.353 2.329 2.616 2.376 1.969 2.38 2.395 2.395 2.395 3.814 1.937
Date Acquii 10/01/201 02/02/201 21/02/201 13/03/201 04/04/201 18/05/201 06/06/201 10/07/201 21/08/201 10/07/201 21/08/201 10/10/201 16/11/201 07/12/201 28/12/201	red Ope 17 A 17 C 17 C 17 A 17 S 17 C 17 A 17 S 17 Dw, 17 A 17 N 17 A 17 C 17 N 17 A 17 C 17 D 17 C 17 D	rator S R S M S S M K K K K K K K K K K K K K K K	Lower Upper 35936 35987 36081 36096 36076 35961 35963 35964 35963 35904 35898 36281 35930 36010 35940 35913	SD % 1.152 1.400 	Head Unif Inde 1.026 1.298 Head 1.196 1.25 1.33 1.297 1.249 1.15 1.112 1.171 1.182 1.367 1.347 1.347 1.347 1.347 1.347 1.347 1.347 1.347	1 Limits x x Int Unif 2.171 3.620 sults x 1 2.675 3.212 3.099 2.825 2.678 2.131 2.315 2.388 2.612 3.42 3.42 2.709 2.985 3.339 -	Diff Unif 1 371 2 267 Diff Unif 1 857 1 906 1 582 1 547 1.452 1.619 1.484 1 347 1.436 1.628 1 594 		Lower Upper 35912 35925 36059 36050 36032 36032 36025 36303 36183 36080 36008 36008 36028 36007 36033 36048	SD % 1 399 1.631 	Head 2 Unif Index 1.296 1.544 1.544 1.538 1.284 1.538 1.595 1.508 1.356 1.534 1.478 1.295 1.461 1.43 1.43 1.43	2 Limits Int Unif 2.442 4.441 3.1 2.804 3.446 3.554 3.16 3.19 3.351 3.251 2.684 3.19 3.351 3.251 2.684 3.49 3.184 3.184	Diff Unif 1.590 2.890 Diff Unif 2.145 1.981 2.274 2.538 2.353 2.329 2.616 2.376 1.969 2.38 2.376 1.969 2.38 2.095 1.853 1.814 1.937
Date Acquii 10/01/201 02/02/201 21/02/201 13/03/201 04/04/201 18/05/201 06/06/201 10/07/201 21/08/201 10/10/201 10/10/201 21/08/201 10/10/201 21/02/201 22/02/201	red Ope 17 A 17 C 17 C 17 A 17 S 17 B 17 C 17 A 17 B 17 C 17 A 17 DW 17 A 17 C 17 A 17 C 17 C 17 A 17 C	rator S R S M S S M K K K K K K K K K K K K K K K	Lower Upper 35936 35987 36081 36096 36076 35961 35963 35904 35898 36281 35930 36010 35940 35913	SD % 1.152 1.400 	Head Unif Inde 1.026 1.298 Head 1 Re Unif Inde 1.196 1.25 1.33 1.249 1.15 1.112 1.171 1.182 1.367 1.347 1.399 1.44	1 Limits x Int Unif 2.171 3.620 sults Int Unif 2.819 2.675 3.212 3.099 2.825 2.678 2.131 2.315 2.342 3.42 2.709 2.985 3.339	Diff Unif 1 371 2 267 Diff Unif 1 857 1 906 1 582 1 547 1.452 1.619 1.484 1 347 1.436 1.628 1 594 1.779 1.761 1 828 - - - -		Lower Upper 35912 35925 36059 36059 36050 36032 36025 36303 36183 36008 36008 36008 36008 36008 36007 36033 36048	SD % 1 399 1.631 	Head 2 Unif Index 1.296 1.544 ead 2 Resu Unif Index 1.355 1.284 1.538 1.595 1.284 1.538 1.508 1.536 1.534 1.478 1.295 1.461 1.43 1.337 1.297 1.254	2 Limits Int Unif 2.442 4.441 3.1 2.804 3.446 3.554 3.16 3.19 3.351 3.251 2.684 3.49 3.184 3.184 3.272 2.917 2.833	Diff Unif 1.590 2.890 Diff Unif 2.145 1.981 2.274 2.538 2.353 2.329 2.616 2.376 1.969 2.38 2.376 1.969 2.38 2.095 1.853 1.814 1.937

12.3.3. Co⁵⁷ Flood and CT Check Up

A Co 57 flood and a CT warm up should be performed daily.

When performing these tests please follow the manufacturers procedures.

Once a test is performed please put your initials in the box to show system is acceptable for use.

Week Commencing		(Co57 Flood	1				C	T Warm U	р			Comments
week connencing	Mon	Tues	Wed	Thurs	Fri		Mon	Tues	Wed	Thurs	Fri		
02/01/2017	n/a	n/a	AS	AS	AS		n/a	n/a	AS	AS	AS		
09/01/2017	AS	AS	AS	AS	AS		AS	AS	AS	AS/CR	AS		
16/01/2017	AS	AS	AS	AS	AS		AS	AS	BM	BM	BM		
23/01/2017	AS	AS	AS	AS	AS		AS	AS	AS	AS	BM		
30/01/2017	AS	AS	AS	AS	AS		CR	CR	CR	CR	CR		
06/02/2017	AS	AS	AS	AS	AS		CR	CR	CR	CR	CR		
13/02/2017	AS	AS	dw	dw	dw		AS	AS	dw	dw	dw		
20/02/2017	AS	AS	AS	AS	AS		AS	AS	AS	BM	BM		
27/02/2017	AS	*	JG	AS	BM		AS	*	BM	BM	BM		Siemens engineer in all day - service
06/03/2017	AS	DW	DW	JG	JG			RSM	RSM	BM	BM		
13/03/2017	AS	AS	AS	AS	AS		RSM	CR	CR/BM	CR	CR		
20/03/2017	AS	AS	AS	AS	JG		RSM	CR	CR	BM	BM		
27/03/2017	AS	AS	AS	AS	AS		AS	AS	AS	CR	CR		
03/04/2017	AS	AS	AS	AS	AS		AS	*	*	*	AS		*ct not working
10/04/2017	DW	RSM	AS	DW	PH		RSM	RSM	DW	CR	PH		t
17/04/2017	PH	AS	*	*	*		PH	RSM	*	*	*		*Siemens carrying out head
24/04/2017	*	*	*	*	*		*	*	*	*	*		*Siemens carrying out head
01/05/2017	*	**	AS	AS	AS		*	**	BM	BM	GEServ		** Accept Test
08/05/2017	AS	AS	AS	DW	AS		AS	AS	AS	CR	CR		
15/05/2017	AS	AS	AS	AS	AS		AS	AS	CR	AS	AS		
22/05/2017	AS	AS	AS	AS	*		RSM	RSM	DW	BM	*		* Not in Use due to error
29/05/2017	*	*	*	AS	AS		*	*	*	BM	BM		* Not in use due to fault
05/06/2017	AS	AS	AS	AS	AS		DW	DW	Dw	DW	DW		
12/06/2017	SERVICE	AS	AS	AS	AS		SERVICE	RSM	CR	Cr	BM		
19/06/2017	AS	AS	DW	AS	As		RSM	CR	CR	Cr	CR		
26/06/2017	AS	AS	AS	*	*		CR	CR	CR	*	*		* Not in use to to Fault
03/07/2017	*	*	CR	FH	FH		*	*	FH	FH*	FH*		* Siemens Engineer in
10/07/2017	CR	CR	CR	CR			RSM	RSM	BM	BM			
17/07/2017	*	AS	FH	AS	AS		*	FH	FH	CR	CR		* Siemens Engineer in
24/07/2017	CP	*	*	*	*		FH	*	*	*	*		* Siemens Engineer in
31/07/2017	*	*	*	*	CR		*	*	*	*	CR		* Siemens Engineer in
07/08/2017	DW	AS	AS	DW	FH		DW	AS	AS	DW	FH		
14/08/2017	FH	AS	AS	DW	DW		RSM	RSM	BM	BM	BM		
21/08/2017	DW	DW	AS	AS	AS		RSM	RSM	RSM	BM	BM		
28/08/2017	AS	AS	AS	AS	AS		AS	CR	CR	DW	CR		
04/09/2017	AS	AS	AS	AS	DF	-	AS	AS	DW/CR	AS	AS		
11/09/2017	AS	AS	AS	AS	AS	-	AS	AS	AS	AS	AS		
18/09/2017	AS	AS	AS	AS	AS	-	AS	AS	AS	AS	AS		* 0. 0. 1. ** 5. 1. 1.
25/09/2017	РН	*	as	as	as**	-	*	*	*	*	**		* Ct Broken ** Engineer In
02/10/2017	AS	*	DW	DW	AS	-	CR	*	RSM	BM	BM		*Seimens Engineer
09/10/2017	AS	AS	AS	AS	CR	-	CR	CR	CR	DW	CR		
16/10/2017	AS	AS	AS	AS		-	CR	FH	RSIM	CR			
23/10/2017	AS	FH	AS	AS	AS	-	AS	FH	FH	FH	AS		
30/10/2017	AS	AS	AS	AS	AS	-	AS	AS	FH	AS	AS		
06/11/2017	AS	AS	AS	AS	AS	-	RSIVI	RSIM	BIM	BIM	BIVI		
13/11/2017	AS	FH	4.6	10	CD.	-	RSIVI	RSIVI	4.0	CD.	CD.		
20/11/2017	AS	AS	AS	JG			CK	FH	AS		CR	_	
2//11/2017	AS	AS	AS n/c	AS	AS			FH	KSIVI	BIVI		_	
04/12/2017	AS	AS		AS	AS		A5	AS	11/d	AS	AS	_	
11/12/2017		A2		AS	A3		AS DCM	AS DW	A5 BM	A5 BM	A5 BM	_	
25/12/2017	MD	гП		M3 DM			NJIVI	000			DIVI		
25/12/2017			υw	RIN	υW				RIVI/DW	RIVI	RIVI		



Figure 24 - Record of Daily C0⁵⁷ flood and CT check up for Siemens Symbia T at

12.3.4. COR Alignment

The COR 180° test should be performed on a weekly basis. The COR 90° test should additionally be performed for the LEHR collimator

Analysis should be performed using the Hermes COR Application for 180° and the in-house COR analysis for 90°

Follow the procedure for acquisition and processing as stated in the SOP

			LEI	HR 180° Lim	its	
LEH	R	COR offset (pixels)	COR offset (mm)	ChiSquare	SD Y Offset (pixels)	Pixel Size
Lower Li	mit	-0.11	-1.00	0.31	-0.11	8.84
Upper Li	mit	0.11	1.00	0.63	0.11	8.84
			LEH	IR 180° Res	ults	
Date Acquired	Operator	COR offset	COR offset	ChiSquara	SD Y Offset	Divel Size
		(pixels)	(mm)	Chisquare	(pixels)	FIXEI JIZE
16/01/2017	CR/AS	0.009	0.080	0.724	0.080	8.839
10/02/2017	AS	0.016	0.140	0.472	0.072	8.839
11/04/2017	CR	0.004	0.033	0.604	0.088	8.839
05/05/2017	AS	0.021	0.183	0.400	0.039	8.839
12/05/2017	BM	0.017	0.149	0.063	0.052	8.839
22/05/2017	CR/AS	0.002	0.015	0.514	0.025	8.839
13/06/2017	AS	0.017	0.155	0.353	0.042	8.839
04/07/2017	CR	0.006	0.056	0.525	0.046	8.839
17/07/2017	AS	0.006	0.049	0.404	0.039	8.839
29/08/2017	AS	0.016	0.142	0.445	0.020	8.839
19/09/2017	RSM/AS	0.035	0.307	0.232	0.053	8.839
09/10/2017	AS	0.018	0.157	0.433	0.016	8.839
03/11/2017	BM/AS	-0.003	-0.029	0.362	0.053	8.839
20/11/2017	AS/Bm	0.019	0.164	0.438	0.071	8.839

	LE	HR 90° Lim	its	
X COR Offset	X Std Dev	X Chi- Squared	Y Std Dev	Y Chi- Squared
-0.50	-0.12	-5.87	0.02	-0.76
0.40	0.40	11.13	0.18	3.46
	LEI	HR 90° Resu	ults	
X COR Offset	X Std Dev	X Chi- Squared	Y Std Dev	Y Chi- Squared
0.020	0.110	0.507	0.083	0.763
0.068	0.070	1.145	0.102	0.517
		-		
0.100	0.104	1.276	0.071	0.433
-0.125	0.196	2.344	0.101	2.039
0.087	0.070	0.775	0.083	0.900
0.101	0.173	4.675	0.088	0.462
0.101	0.084	0.805	0.059	1.285
-0.003	0.081	0.970	0.071	1.329

Limits set as of 18/03/2017 by If values e outwith tolerance

please le

		r					1
MEG	P	COR offset	COR offset	MEGP Limit	SDY Offset		
		(pixels)	(mm)	ChiSquare	(pixels)	Pixel Size	
Lower Li	mit	-0.11	-1.00	0.06	-0.11	8.84	
Upper Li	mit	0.11	1.00	0.44	0.11	8.84	Limits set as of
							18/03/2017 by
			IV	1EGP Result	ts		If
Date Acquired	Operator	COR offset (pixels)	COR offset (mm)	ChiSquare	SD Y Offset (pixels)	Pixel Size	values are outwith tolerance please let
11/01/2017	BAJ/HJW	0.029	0.256	0.141	0.034	8.839	know.
01/02/2017	AS	0.003	0.025	0.193	0.036	8.839	
22/02/2017	CR	0.015	0.131	0.224	0.030	8.839	
14/03/2017	BM	0.001	0.012	0.199	0.033	8.839	
24/03/2017	BM	0.018	0.161	0.263	0.064	8.839	
27/04/2017	CR	-0.005	-0.046	0.373	0.092	8.839	
19/05/2017	BM	-0.001	-0.008	0.156	0.055	8.839	
05/06/2017	AS	0.005	0.047	0.168	0.045	8.839	
13/07/2017	CR	0.017	0.155	0.353	0.042	8.839	
02/08/2017	AS	0.000	0.004	0.086	0.048	8.839	
15/09/2017	CR	-0.006	-0.052	0.287	0.046	8.839	
16/11/2017	CR/AS	0.024	0.208	0.348	0.042	8.839	
30/11/2017	As						
07/12/2017	BM	-0.022	-0.191	0 212	0.026	8.839	

	20		1	LEGP Limit	s		1
ELEC	אנ	COR offset	COR offset	ChiSquare	SD Y Offset	Pixel Size	
Lower Li	mit	-0.11	-1.00	-1.59	-0.11	8.84	
Upper Li	mit	0.11	1.00	2.42	0.11	8.84	Limits set as of
							18/03/2017 by
			E	LEGP Result	ts		If
Date Acquired	Operator	COR offset (pixels)	COR offset (mm)	ChiSquare	SD Y Offset (pixels)	Pixel Size	values are outwith tolerance please let
06/01/2017	CR	0.017	0.146	0.339	0.043	8.839	know.
25/01/2017	AS	0.013	0.118	0.299	0.053	8.839	
14/02/2017	CR	0.036	0.319	0.248	0.061	8.839	
09/03/2017	CR/AS	0.004	0.035	0.369	0.061	8.839	
20/04/2017	CR/AS	-0.006	-0.050	0.310	0.079	8.839	
29/05/2017	CR/AS	-0.002	-0.021	0.250	0.058	8.839	
19/06/2017	RSM	-0.025	-0.219	0.093	0.037	8.839	
08/09/2017	AS	0.005	0.047	0.150	0.039	8.839	
29/09/2017	CR/AS	-0.003	-0.026	0.279	0.076	8.839	
16/10/2017	AS/BM	0.047	0.416	0.087	0.040	8.839	
10/11/2017	CR/AS	0.013	0.111	0.222	0.085	8.839	
23/11/2017	DW	0.000	0.002	0.209	0.067	8.839	
30/11/2017	AS	0.010	0.084	0.155	0.029	8.839]
							1

Figure 25 - Record of weekly COR for GE Optima 640 at

12.3.5. Weekly Checks dose calibrator

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Figure 26 - Record of weekly dose calibrator QC at

12.4. Legislation and Radiation Control

12.4.1. Protocol used In the event of a Radiation Accident and/or Spill

In all accidents involving radioactive materials the radiation protection supervisor must be informed as soon as possible.

In the event of a spill of radioactive materials, the order of priorities is as follows:

- 1. Protection of other personnel
- 2. Confinement of contamination
- 3. Decontamination of personnel
- 4. Decontamination of the area involved.

All non-contaminated staff should be evacuated and re-entry forbidden. These persons should inform the RPS regarding the incident. The RPA should also be informed where the count-rate cannot be reduced below the action levels given on the calibration certificate for the contamination monitor.

With respect to the NMD, there are two categories of spillage:

For *serious spillage* which involve the breakage of a dose vial containing either therapeutic or diagnostic radionuclide. In this case the area should be cleared of staff not directly involved and personnel checked for contamination. The RPS and senior scientific staff should be contacted **immediately**.

For smaller *spills including drips etc*, the spillage should be contained and personnel checked for contamination. If contamination is found, procedures for removing it should be instituted immediately. The spillage should be cleaned up utilising protective clothing and possibly remote handling tools. Waste materials should be double-bagged and placed in the storage area for radioactive waste. Any areas of floor or bench still contaminated after cleaning procedures should be covered with Benchcote secured with radioactive warning tape. The RPS should be informed.

Decontamination procedures

 Hands and other skin areas: - Wash thoroughly with soap and water. Do not use detergents, abrasive materials etc. Take great care not to injure the skin. Even if contamination has not been sufficiently reduced, do not proceed to the stage of breaking the skin.

- Eyes, cuts: Irrigate with water, but take great care to prevent the spread of contamination to or from other areas.
- Clothing: Contaminated garments should be removed immediately and placed in a sealed container. They should not be removed from the room until the contamination has been monitored.
- Working surface: The surplus liquid should be mopped up with absorbent tissues, and then the area washed with detergent and water. Place all contaminated materials in a separate sealed container and keep till monitored. Entry to the area must be restricted until monitoring has been carried out and the radiation level has been assessed. The radiation protection supervisor will arrange monitoring.

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<u>~</u>	50 # LOK	WDIE # 2001CE MUILINE	Iconol cilinoo						
	-	BKG	1523	1519				Flood position.	s
		BKG	1542 1537	23	0.0			Top Edge	
		с	1566	47	0.1		1st Q	2nd Q	
		BKG	1550	9					
		4 4	150/	48			3ml O	Ath O	
		ол С	1540	21	0.0		Ø) F	
		BKG	1459						sticker
		6-1	1529	10	0.0		Q1-4: sticker side	Q9 = edges	
	2	BKG	1508	1509	:		Q5-8: reverse side		
		6-2	1488	-21	88				
		0-0 2/10	1520	71			Course Nh leatons	A c-tivitur*	Description
		7-1	1521	13	0.0		1 Cs137	8.1 MBd	Vial
1		7-2	1450	-59	-0.1		2 C057	740 MBq	Flood
		7-3	1524	16	0.0		3 Cs137	0.7 kBq	Sample tube
		BKG	1531				4 Sr90	0.09 kBq	Mini plate
		8	1528	20	0'0		5 1-129	0.982 kBq	Sample tube
		BKG	1485				6-1 Co57	4.4 kBq	old pen (in box) - bod
	ę	BKG	1511	1517			6-2		old pen (in box) - lid
		6	1429	88	-0.1		63		old pen (in box) - tip
		BKG	1555			•	7-1 Co57	38 kBq	old pen (red body) - t
		10-1	1517	0	0.0		7-2		old pen (red body) - li
		10-2	1557	40	0.1		7-3		old pen (red body) - t
		10-3	1488	-29	0.0		8 Sr90	100 Bq	Larger plate
		BKG	1486		0.0		9 Co57	57 kBq	Point Source
		11-1	1567	50	0.1		10-1 Co57	3.7 MBq	pen - body
		11-2	1488	-29	0.0		10-2		pen - lid
		11-3	1499	-18	0.0		10-3		pen - tip
	4	BKG	1503	1530			11-1 Co57	3.7 MBq	new pen - body
		21	1496	-34	-0.1		11-2		new pen - lid
		BKG	1523				11-3		new pen - tip
		2-1	1562	32	0.1		12 Co57	15 MBq	L-marker
		2-2	1545	15	0.0		-		
		2-3	1518	71-			"As last measured	or as rererenced	
		47	1542	2	3				
		2-5	1532	2	9				
		0-7 D/C	144/	20	-				
	5	BKG	1488	1485					
	,	2-7	1491	7	5				
		2-8	1497	13	0.0				
		2-9	1493	σ	0.0				
		BKG	1481						
		-	ç						
KG Ave	1514.06		<u>Counts</u>		XST UeV				
I Dev	28.61		F						
)2*SD	57.23	Note	s on Wipe Test	Results					
1	Note The wipe te:	s:Under IRR99 Regulation 27, st is mostwidely used and rem	there is a statutory requi	rem ent to leak te xceed 185Bq (sp	stall sealed sources at ecification is British Sta	least once every two years . ndard BS 5288 1976, Appendix D)			
	:	Procedure: Using a MediSwab	, an approriate area of the	e surface should	be wiped (note that to m	easure the exact level			
of contami	nation, allowai	nce mustbe made tor only a pr	oportion of the leakage b	eing removed by	ne swab (~10%). Ihere	erore all sam ples should measure under 1969.			
		Pass/Fail crit	eria: anvthing >19cps ab	ove background	varrants further investig	ation			

12.4.2. Leak Test Sealed Sources

Figure 27 - Record of leak test sealed sources results at

12.4.3. Consignor Note to Return Packages





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Figure 28 - Consignor note to return Krypton Generator



Figure 29 - Consignor note to return tins and drums with empty lead pots

12.5. Clinical Audit - BSLN

This aim of this audit was to determinate the reasons for the discrepancy between the results from both sites for successful visualisation of the BSLN, comparing demographics, clinical status and imaging outcome of patients imaged at **Constitution** and imaging outcomes at both sites against EANM/BNMS standards¹⁸. The CRIS reports and minimum of 60 images were reviewed for this audit. The data for the audit was recorded in 2015 in 30 patients per site (total of 60 patients) and all patients are females. Investigation of results found that Sentinel Node (SLN) were only visualised in approximately 80% of the patients at

whilst SLN were visualised in approximately 94% of patients attending at which means the results at the were falling short of this target.



Figure 30 - Results of SLN identified and not identified between

In order to determine why the site was not hitting the 95% target, all literature for SLN imaging and imaging technique at each site was investigated. Initially demographics and clinical history of the patients (age of patients, tumour stage, date of imaging)¹⁹ and procedure performed (SACH only performs day surgery and more complex cases) were investigated and compared.

The reviewed literature recommend to acquire an anterior image (patient in supine), lateral image (patient on side) and anterior oblique image (patient propped at 45 degrees). The images must be acquired at 15-30 minutes pos injection and at 1 & 2-4 hours as

¹⁸ EANM/BNMS Standards – SLNs should be identified in 95% of patients and 20-30% of SLNs should contain metastatic cells.

¹⁹ To determine whether the two groups were significantly different.