

# 12.1.6. Master Dispensing Schedule

**MASTER DISPENSING SCHEDULE**

*Stock 2016/02/21  
(0.2ml) 25015*

NUCLIDE	PRODUCT	No. OF DOSES	ACTIVITY (MBq)	VOL. (ml)	REF. TIME	REF. DATE	USER	GENERATOR No.	KIT No.	CALIBRATOR READING (MBq)	DISPENSED BY	DOSE No.
Tc99m	DMSA	1	50.00	2.0	10:00	09/11/17	AYR-NM					229550
Tc99m	DMSA	1	50.00	2.0	10:00	09/11/17	GGH-N M					229551
Tc99m	DMSA	1	50.00	2.0	10:00	09/11/17	ROYAL-N M	29958		56		229552
Tc99m	DMSA	1	80.00	3.0	12:00	09/11/17	AYR-NM	29958		108		229553
Tc99m	DMSA	1	80.00	3.0	12:00	09/11/17	ROYAL-N M	29958		108		229554
Tc99m	DMSA	1	80.00	3.0	13:00	09/11/17	GGH-N M					229555
Tc99m	PERT	3	3000.00	3.0	10:00	09/11/17	WIG-DISPENSARY			Stock 0.2ml		229556
Tc99m	PERT	1	50.00	0.5	11:00	09/11/17	AYR-NM					229559
Tc99m	PERT	1	50.00	0.5	11:00	09/11/17	GGH-N M					229560
Tc99m	PERT	1	50.00	0.5	11:00	09/11/17	ROYAL-N M	29958		62		229561
Tc99m	PERT	1	200.00	2.0	12:00	09/11/17	AYR-NM					229562
Tc99m	PERT	1	200.00	2.0	12:00	09/11/17	GGH-N M					229563
Tc99m	PERT	1	200.00	2.0	12:00	09/11/17	ROYAL-N M	29958		285		229564

**PRODUCED** Tc99m 229558  
**PERTECHNETATE**  
**INTRAVENOUS INJECTION**  
 3000.00 MBq in 3.0 ml  
 Ref. Time 10:00 hr on 09/11/2017  
 Expiry 2 HOURS

**MASTER DISPENSING SCHEDULE**

*(1.9 ml) 200014 25 ml/02/21*

NUCLIDE	PRODUCT	No. OF DOSES	ACTIVITY (MBq)	VOL. (ml)	REF. TIME	REF. DATE	USER	GENERATOR No.	KIT No.	CALIBRATOR READING (MBq)	DISPENSED BY	DOSE No.
Tc99m	MDP	1	200.00	3.0	11:00	09/11/17	AYR-NM					229565
Tc99m	MDP	1	200.00	3.0	11:00	09/11/17	GGH-N M					229566
Tc99m	MDP	1	200.00	3.0	12:00	09/11/17	ROYAL-N M	29958		301		229567
Tc99m	MDP	1	200.00	3.0	13:00	09/11/17	AYR-NM					229568
Tc99m	MDP	1	200.00	3.0	13:00	09/11/17	GGH-N M					229569
Tc99m	MDP	1	200.00	3.0	13:00	09/11/17	ROYAL-N M	29958		318		229570

Figure 9 - Master Dispensing Schedule at [REDACTED]

### 12.1.7. Master Dispensing Schedule Checked

**MASTER DISPENSING SCHEDULE**

25015

NUCLIDE	PRODUCT	No. of Doses	ACTIVITY (MBq)	VOL. (ml)	REF. TIME	REF. DATE	USER	AT TIME OF CHECKING			
								TIME	CALIBRATOR READING (MBq)	CHECKED BY	DOSE No.
Tc99m	DMSA	1	80.00	2.0	10:00	09/11/17	AYR-NM	9.42			229550
Tc99m	DMSA	1	50.00	2.0	10:00	09/11/17	GGH-NM				229551
Tc99m	DMSA	1	80.00	2.0	10:00	09/11/17	ROYAL-NM	9.42	517		229552
Tc99m	DMSA	1	80.00	3.0	12:00	09/11/17	AYR-NM				229553
Tc99m	DMSA	1	80.00	3.0	12:00	09/11/17	ROYAL-NM	9.43	101		229554
Tc99m	DMSA	1	80.00	3.0	13:00	09/11/17	GGH-NM				229555
Tc99m	PBCT	3	3000.00	3.0	10:00	09/11/17	WHG-DISPENSARY		Stone orals		229556
Tc99m	PBCT	1	80.00	0.5	11:00	09/11/17	AYR-NM				229559
Tc99m	PBCT	1	80.00	0.5	11:00	09/11/17	GGH-NM				229560
Tc99m	PBCT	1	80.00	0.5	11:00	09/11/17	ROYAL-NM	9.44	58		229561
Tc99m	PBCT	1	200.00	2.0	12:00	09/11/17	AYR-NM				229562
Tc99m	PBCT	1	200.00	2.0	12:00	09/11/17	GGH-NM				229563
Tc99m	PBCT	1	200.00	2.0	12:00	09/11/17	ROYAL-NM	9.45	274		229564

**PRODUCT INFORMATION**

**Tc99m** 229554

**DMSA**

**INTRAVENOUS INJECTION**

80.00 MBq in 3.0 ml

Ref. Time 12:00 hr on 09/11/2017

Expiry 2 HOURS

POM

**PRODUCT INFORMATION**

**Tc99m** 229564

**PERTECHNETATE**

**INTRAVENOUS INJECTION**

200.00 MBq in 2.0 ml

Ref. Time 12:00 hr on 09/11/2017

Expiry 2 HOURS

POM

**PRODUCT INFORMATION**

**Tc99m** 229552

**DMSA**

**INTRAVENOUS INJECTION**

50.00 MBq in 2.0 ml

Ref. Time 10:00 hr on 09/11/2017

Expiry 2 HOURS

POM

**PRODUCT INFORMATION**

**Tc99m** 229561

**PERTECHNETATE**

**INTRAVENOUS INJECTION**

50.00 MBq in 0.5 ml

Ref. Time 11:00 hr on 09/11/2017

Expiry 2 HOURS

POM

**MASTER DISPENSING SCHEDULE**

700014

NUCLIDE	PRODUCT	No. of Doses	ACTIVITY (MBq)	VOL. (ml)	REF. TIME	REF. DATE	USER	AT TIME OF CHECKING			
								TIME	CALIBRATOR READING (MBq)	CHECKED BY	DOSE No.
Tc99m	MDP	1	200.00	3.0	11:30	09/11/17	AYR-NM				229565
Tc99m	MDP	1	200.00	3.0	11:30	09/11/17	GGH-NM				229566
Tc99m	MDP	1	200.00	3.0	12:00	09/11/17	ROYAL-NM	9.46	283		229567
Tc99m	MDP	1	200.00	3.0	13:00	09/11/17	AYR-NM				229568
Tc99m	MDP	1	200.00	3.0	13:00	09/11/17	GGH-NM				229569
Tc99m	MDP	1	200.00	3.0	13:00	09/11/17	ROYAL-NM	9.47	299		229570

**PRODUCT INFORMATION**

**Tc99m** 229567

**METHYL DIPHOSPHONATE**

**INTRAVENOUS INJECTION**

200.00 MBq in 3.0 ml

Ref. Time 13:00 hr on 09/11/2017

Expiry 2 HOURS

POM

**PRODUCT INFORMATION**

**Tc99m** 229570

**METHYL DIPHOSPHONATE**

**INTRAVENOUS INJECTION**

200.00 MBq in 3.0 ml

Ref. Time 13:00 hr on 09/11/2017

Expiry 2 HOURS

POM

Figure 10 - Master Dispensing Schedule Checked at [REDACTED]

**12.1.8. Consignor Certificate for delivery of packages**



SAMPLE PORTFOLIO



**Figure 11** - Consignor certificate for delivery of packages

### 12.1.9. Radiochemical Purity

Figure 12 - Example of Tc<sup>99m</sup>-DMSA radiochemical purity at [REDACTED]

### 12.1.10. Labels for transport



Figure 13 - Labels used for transport

12.1.11. Daily Clean Form (Dispensary - [REDACTED])

SAMPLE PORTFOLIO

Figure 14 - Dispensary daily clean form at [REDACTED]

**12.1.12. Contamination Monitoring Form**



SAMPLE PORTFOLIO

**Figure 15** - Contamination monitoring form at [redacted] – Part 1

[REDACTED]

SAMPLE PORTFOLIO

[REDACTED]

**Figure 16** - Contamination monitoring form at [REDACTED] – Part 2

## 12.2. Imaging Acquisition and non-imaging equipment

### 12.2.1. Competencies Form



Figure 17 - Competency assessment form – Part 1



[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

SAMPLE PORTFOLIO

**Figure 18** - Competency assessment form – Part 2

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

SAMPLE PORTFOLIO

Figure 19 - Competency assessment form – Part 3



SAMPLE PORTEFO



Figure 20 - Competency assessment form – Part 4

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

[Redacted]

SAMPLE PORTFOLIO

**Figure 21** - Competency assessment form – Part 5

## 12.3. Equipment Management System

### 12.3.1. Equipment Inventory System

Table 9 - Equipment Inventory System at [REDACTED]

Equipment	Name of manufacturer	Model	Serial number	Year of manufacture	Year of installation
Gamma camera	GE	Optima 640	00162NUC11 HP 6600, 6601,6602	2013	2013
Gamma camera	Siemens	Symbia T	NMS0011919 HP 009608	2007	2007
Bone Densitometer	Hologics	Horizon A QDR series	HP xxxx 200846	2016	2016
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 Generator	Diagnostic Imaging	Smartvent		2005	2005
Amercare cabinet	Amercare		A1115	2016	2016
Isotope calibrator	Capintec In Amercare	CRC-25R	253373	2015	2016
Computing System	GE	Xeleris	C2C2300DCZ	2013	2013
Computing System	Nuclear Diagnostics	Hermes	-	2005 Updated 2015	2005
Radiation Monitor	Tracerco	PED Blue		2015	2015
Radiation Monitor (Wall mounted)	Berthold	LB124	HP 6899	2014	2014
Radiation Monitor (wall)	Berthold	LB123	6578	2007	2007

mounted)					
Radiation Monitor (wall mounted)	Berthold	LB123	6578	2007	2007
Radiation Monitor (wall mounted)	Berthold	LB123	6578	2007	2007
Radiation Monitor	HandHound	RadHound	HP 5395	2012	2012
Radiation Monitor (wall mounted)	Berthold	LB123	6578	2007	2007
Radiation Monitor	Mini Instruments	900	5273 HP 5383	2011	2011
Dose Rate Meter	Smartlon		L000762	1997	1997
Theatre Probe	Navigator GPS	GPS	200412003	2004	2004
Theatre Probe	NeoProbe	2000	073864228 Probe: 110-02149	2007	2007
Laser printer	Xerox	Phaser 8550	WYP146165	2007	2007
Technegas Generator	Imaging Equipment Ltd		TP 093602	2011	2011
Uptake counter	Ortec	Digibase NAI(Tl) detector	13066788 60013-01299-I	2013	2013
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

LEHR		Head 1 Limits				Head 2 Limits					
			SD %	Unif Index	Int Unif	Diff Unif		SD %	Unif Index	Int Unif	Diff Unif
		Lower	0.953	0.767	2.046	1.038	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 Acquired	Operator	Head 1 Results				Head 2 Results					
		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

LEAP		Head 1 Limits				Head 2 Limits					
			SD %	Unif Index	Int Unif	Diff Unif		SD %	Unif Index	Int Unif	Diff Unif
		Lower	1.152	1.026	2.171	1.371	Lower	1.399	1.296	2.442	1.590
		Upper	1.400	1.298	3.620	2.267	Upper	1.631	1.544	4.441	2.890
Date Acquired	Operator	Head 1 Results				Head 2 Results					
		Cnts/Pix	SD %	Unif Index	Int Unif	Diff Unif	Cnts/Pix	SD %	Unif Index	Int Unif	Diff Unif
10/01/2017	AS	35936	1.307	1.196	2.819	1.857	35912	1.454	1.355	3.1	2.145
02/02/2017	CR	35987	1.356	1.25	2.675	1.906	35925	1.388	1.284	2.804	1.981
21/02/2017	AS	36081	1.43	1.33	3.212	1.582	36059	1.625	1.538	3.446	2.274
13/03/2017	RSM	36096	1.35	1.243	3.099	1.547	36050	1.68	1.595	3.554	2.538
04/04/2017	AS	36076	1.4	1.297	2.825	1.452	36032	1.598	1.508	3.16	2.353
04/05/2017	BM	35961	1.355	1.249	2.678	1.619	36025	1.455	1.356	3.19	2.329
18/05/2017	CR	35963	1.265	1.15	2.131	1.484	36303	1.621	1.534	3.351	2.616
06/06/2017	Dw/BM	35904	1.231	1.112	2.315	1.347	36183	1.568	1.478	3.251	2.376
10/07/2017	RSM	35898	1.285	1.171	2.388	1.436	36080	1.398	1.295	2.684	1.969
21/08/2017	DW/AS	36281	1.293	1.182	2.612	1.628	36008	1.553	1.461	3.49	2.38
11/09/2017	AS	35930	1.465	1.367	3.42	1.594	36223	1.523	1.43	3.184	2.095
10/10/2017	CR										
16/11/2017	RSM/AS	36010	1.447	1.347	2.709	1.779	36007	1.437	1.337	3.272	1.853
07/12/2017	AS	35940	1.495	1.399	2.985	1.761	36033	1.4	1.297	2.917	1.814
28/12/2017	bm	35913	1.533	1.44	3.339	1.828	36048	1.36	1.254	2.833	1.937

Figure 23- Record of weekly extrinsic uniformity (LEAP collimators) for Siemens Symbia T at [redacted]

### 12.3.3. Co<sup>57</sup> 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					CT Warm Up					Comments
	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 Fault
03/07/2017	*	*	CR	FH	FH	*	*	FH	FH*	FH*	* Siemens Engineer in
10/07/2017	CR	CR	CR	CR	AS	RSM	RSM	BM	BM	CR	* Siemens Engineer in
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	
25/09/2017	PH	*	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	RSM	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	RSM	RSM	BM	BM	BM	
13/11/2017	AS	FH				RSM	RSM				
20/11/2017	AS	AS	AS	JG	CR	CR	FH	AS	CR	CR	
27/11/2017	AS	AS	AS	AS	AS	CR	FH	RSM	BM	CR	
04/12/2017	AS	AS	n/a	AS	AS	AS	AS	n/a	AS	AS	
11/12/2017	CR	AS	DW	AS	AS	AS	AS	AS	AS	AS	
18/12/2017	AS	FH	DW	AS	DW	RSM	DW	BM	BM	BM	
25/12/2017			DW	BM	DW			BM/DW	BM	BM	

Colour Key	
Red	No entry in book
Yellow	Entry but no initials

Figure 24 - Record of Daily CO<sup>57</sup> flood and CT check up for Siemens Symbia T at [REDACTED]



### 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

LEHR		LEHR 180° Limits					LEHR 90° Limits				
		COR offset (pixels)	COR offset (mm)	ChiSquare	SD Y Offset (pixels)	Pixel Size	X COR Offset	X Std Dev	X Chi-Squared	Y Std Dev	Y Chi-Squared
Lower Limit		-0.11	-1.00	0.31	-0.11	8.84	-0.50	-0.12	-5.87	0.02	-0.76
Upper Limit		0.11	1.00	0.63	0.11	8.84	0.40	0.40	11.13	0.18	3.46

Date Acquired	Operator	LEHR 180° Results					LEHR 90° Results				
		COR offset (pixels)	COR offset (mm)	ChiSquare	SD Y Offset (pixels)	Pixel Size	X COR Offset	X Std Dev	X Chi-Squared	Y Std Dev	Y Chi-Squared
16/01/2017	CR/AS	0.009	0.080	0.724	0.080	8.839	0.020	0.110	0.507	0.083	0.763
10/02/2017	AS	0.016	0.140	0.472	0.072	8.839	0.068	0.070	1.145	0.102	0.517
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	0.100	0.104	1.276	0.071	0.433
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	-0.125	0.196	2.344	0.101	2.039
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	0.087	0.070	0.775	0.083	0.900
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	0.101	0.173	4.675	0.088	0.462
19/09/2017	RSM/AS	0.035	0.307	0.232	0.053	8.839	0.101	0.084	0.805	0.059	1.285
09/10/2017	AS	0.018	0.157	0.433	0.016	8.839	-0.003	0.081	0.970	0.071	1.329
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					

Limits set as of 18/03/2017 by [redacted] If values are outwith tolerance please let [redacted] know.

MEGP		MEGP Limits				
		COR offset (pixels)	COR offset (mm)	ChiSquare	SD Y Offset (pixels)	Pixel Size
Lower Limit		-0.11	-1.00	0.06	-0.11	8.84
Upper Limit		0.11	1.00	0.44	0.11	8.84

Date Acquired	Operator	MEGP Results				
		COR offset (pixels)	COR offset (mm)	ChiSquare	SD Y Offset (pixels)	Pixel Size
11/01/2017	BAJ/HJW	0.029	0.256	0.141	0.034	8.839
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

Limits set as of 18/03/2017 by [redacted] If values are outwith tolerance please let [redacted] know.

ELEGP		ELEGP Limits				
		COR offset (pixels)	COR offset (mm)	ChiSquare	SD Y Offset (pixels)	Pixel Size
Lower Limit		-0.11	-1.00	-1.59	-0.11	8.84
Upper Limit		0.11	1.00	2.42	0.11	8.84

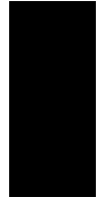
  

Date Acquired	Operator	ELEGP Results				
		COR offset (pixels)	COR offset (mm)	ChiSquare	SD Y Offset (pixels)	Pixel Size
06/01/2017	CR	0.017	0.146	0.339	0.043	8.839
25/01/2017	AS	0.013	0.118	0.299	0.053	8.839
14/02/2017	CR	0.036	0.319	0.248	0.061	8.839
09/03/2017	CR/AS	0.004	0.035	0.369	0.061	8.839
20/04/2017	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

Limits set as of 18/03/2017 by [redacted] If values are outwith tolerance please let [redacted] know.

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

12.3.5. Weekly Checks dose calibrator [REDACTED]



SAMPLE PORTFOLIO



Figure 26 - Record of weekly dose calibrator QC at [REDACTED]

## 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.

SAMPLE PORTFOLIO

## 12.4.2. Leak Test Sealed Sources

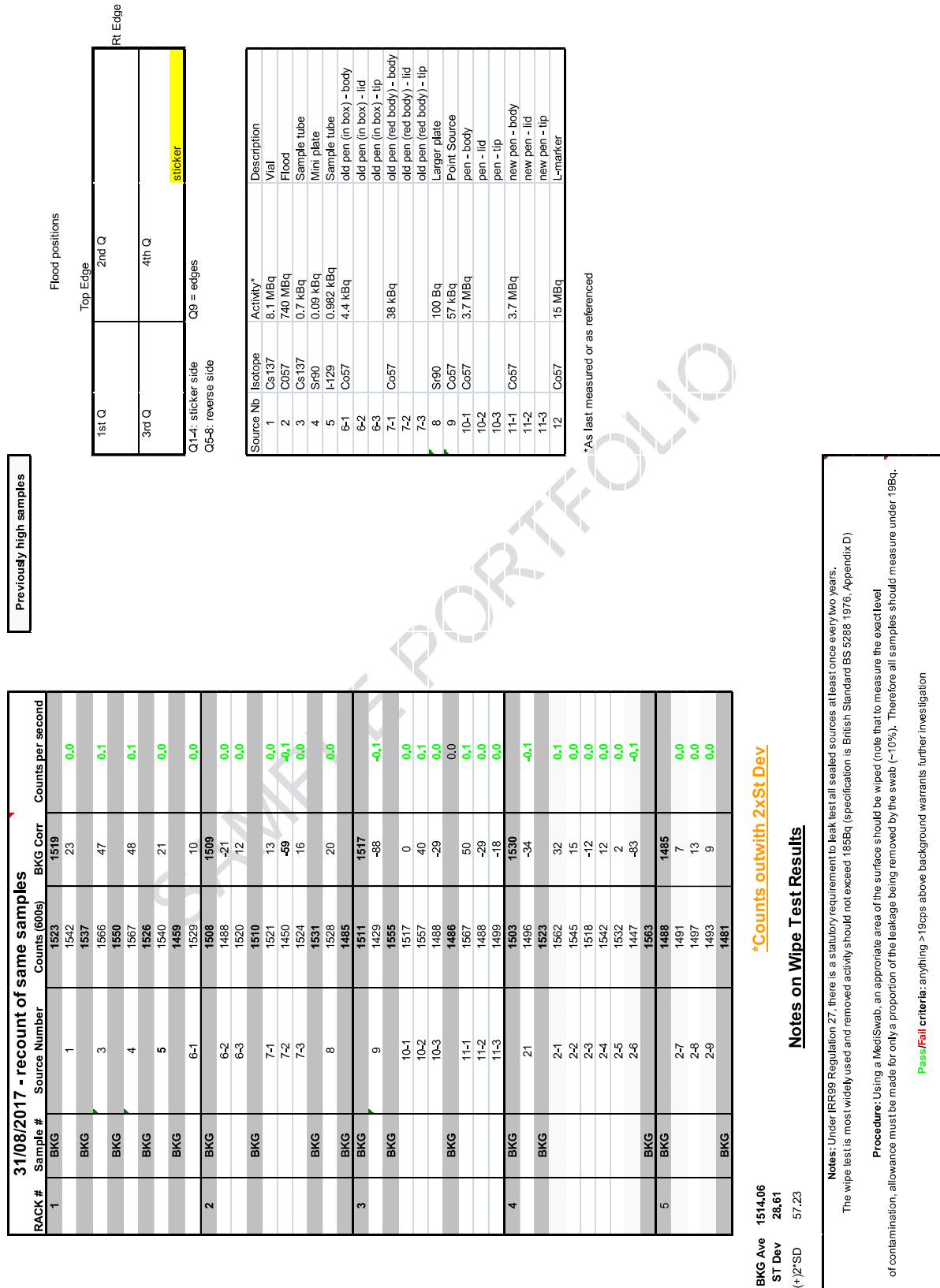


Figure 27 - Record of leak test sealed sources results at

### 12.4.3. Consignor Note to Return Packages



SAMPLE PORTFOLIO

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**Figure 28** - Consignor note to return Krypton Generator

[Redacted]

[Redacted]

[Redacted]

[Redacted]

SAMPLE PORTFOLIO

[Redacted]

**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 [REDACTED] and imaging outcomes at both sites against EANM/BNMS standards<sup>18</sup>. 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 [REDACTED] whilst SLN were visualised in approximately 94% of patients attending at [REDACTED] which means the results at the [REDACTED] were falling short of this target.

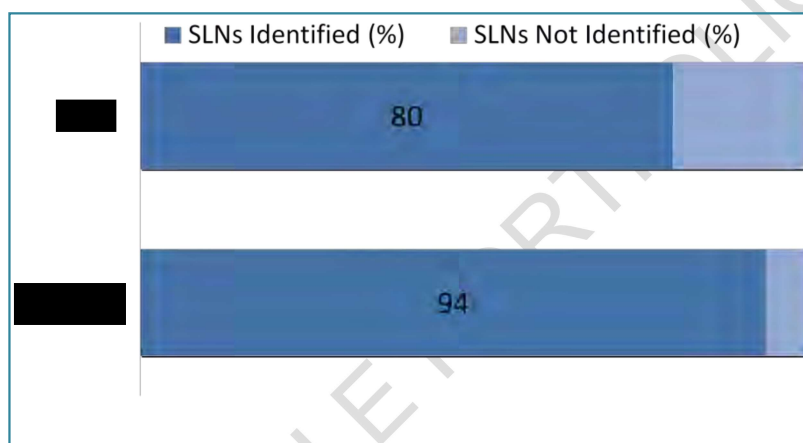


Figure 30 - Results of SLN identified and not identified between [REDACTED]

In order to determine why the [REDACTED] 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)<sup>19</sup> and procedure performed (SACH only performs day surgery and [REDACTED] 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

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

<sup>19</sup> To determine whether the two groups were significantly different.