required for 3-5 minutes (256 x 256 matrix). The Co^{57} flood must be used underneath the patient to provide outline. However the procedures used at both sides are slightly different if compared with the literature recommendations.

Table 10 - Differences between

Radiopharmaceutical	Tc ^{99m}	- Nanocolloid
Activity		same day or 40MB if surgery is on e next day
Time of acquisition	20 minute	es after injection
Images acquired		ics views for 5 minutes per view. x 256 matrix
Patient positioning	Patient imaged lying supine on bed Anterior Image – arm is out to side Lateral Image – arm is above head	Patient imaged in standing position Anterior image — arm is angled (hand on hip) Lateral Image — arm is above head
	Masking of the i	njection site as required
	Patients outline pro	oduced using a cobalt flood

There are differences in the imaging method used across sites. The reason for this is because patients attend as a group, typically with 3 patients, all due to go for presurgery preparation then straight to theatre. For this reason, it is important that the scanning for all patients is performed within an hour. If no nodes are seen, patient is sent back to the waiting area to allow more time for uptake, whilst another patient is taken into the camera room to start the scan, therefore having the patient standing aides this process. Initially, the difference in the results could be due to patient positioning with those at having breast tissue overlying any SLN and the scanning was not being extended if no SLN observed.

In the next step, a review was performed to analyse if the difference could be down to frequency of performing the study and staff experience. At the BSLN procedures were

performed up to 6 per week, consequently when performing so frequently and going straight to surgery we will be aware very quickly if it is a problem with technique. However, at the BSLN procedures were typically performed once a week and for that reason it could take longer to notice a problem.

Table 11 - Frequency of BSLN procedures at both sides

Date of Imaging	23/06/15 – 14/08/15	06/03/13 – 23/02/15
Number of Patients	30	30
Age Range (Mean)	41-79 (59.4)	31-79 (54.2)

Regarding the investigation of patients groups no significant differences between the groups was found. Nodes positive for metastatic cells were seen in 30% of patients at and 18.8% of patients at an and 18.8% of patients at an another and 18.8% of patients at an another an another at an another

Table 12 - Comparation of different procedures at both departments

Procedure		
Wide Local Excision & SLN Biopsy	6 (20%)	28 (88%)
Mastectomy & SLN Biopsy	24 (80%)	3 (9%)
SLN Biopsy	0 (0%)	1 (3%)

Based on investigation results, the scanning procedures were changed at to ensure all images checked prior to patient leaving the department. If no nodes seen the next steps would be followed:

- Establish if masked/unmasked images are required;
- Remove cobalt flood and acquire image;
- Consider delayed imaging.

The new changes were implemented and both departments decided to re-audit in the follow year.

-

 $^{^{20}}$ BNMS referred 20-30% of SLNs should contain metastatic disease.

In May of 2016, the staff at raised on-going issues with imaging of BSLN so a further review of imaging was performed and it was decided that staff should scan for longer without the cobalt flood. However, in August regarding a patient with no uptake and poor counts a review of injection technique for SLN was performed. The results showed that some staff were not using all the volume in syringe due to back-pressure. As a result size of injection needle was changed from orange (25G, 0.5 mm) to a diabetic needle and syringe (29G, 0.33mm) and staff were encouraged to use the entire volume in syringe.

In 2017, 38 patients' images (all patients were females and the scans date from May 2016 to May 2017) and CRIS reports were reviewed at to investigate if there was any improvement in the results. As can be observed in the graph, had a huge improvement in the results with the changes referred before.

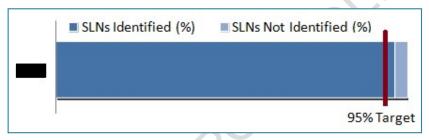


Figure 31 - Results of SLN identified and not identified at

Being the only member of the clinical technologist/nurse staff working at both departments and performing different protocols, I strongly believe the problem was focused on the injection technique of the staff at and not on the image acquisition procedure. Also, I think it is important to continue to re-audit this procedure to ensure both departments are maintaining the improvement on the results.

12.6. Safe Working Practice

12.6.1. Induction Form



Figure 32 - Induction checklist record – Part 1





Figure 33 - Induction checklist record - Part 2



Figure 34 - Induction checklist record - Part 3



Figure 35 - Induction checklist record - Part 4



Figure 36 - Induction checklist record - Part 5

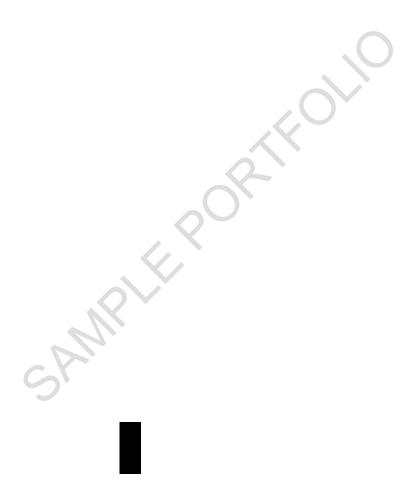


Figure 37 - Induction checklist record – Part 6

Induction		Item	Details		. [¥
Portal	5 · · · · · · · · · · · · · · · · · · ·	7		Date Achieved	Tick box when completed	
Step 3 Statutory	Week 1- Month	Professional Development and Training	Learning and Education			
and Mandatory	m¹	n	can be found on <u>HR Connect</u>	0/1/1/2	ā :	
Training Information		¥	A complete list of Statutory/ Mandatory training can be found by clicking here.			
Induction		Item	Details	Date	Tick hox	
Portal				Achieved	when completed	
Healthcare Support Workers	-	Healthcare Support Workers		7		
ast Revised – June 2016	June 201	9	10. Building "customer" relationships".			^

Figure 38 - Induction checklist record – Part 7

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 11. Managing yourself as a resource. 12. Working within your own limits. 13. Working in line with the equality, diversity, rights and responsibilities of people. 14. "Whistle-blowing" in cases of harm and abuse. 	Reviewer Handbook This <u>document</u> is a guide for reviewers who are overseeing the process of HCSW induction completion	HCSW Workbook	This <u>document</u> is for HCSW's. It explains what they need to do in order to meet the induction standards. Your new start should be given a copy of this document so that they understand the background and process of what is required.	Completing the Workbook	The HCSW will require to submit evidence to you via the workbook. This can be done in two ways	 They can download a paper version of the workbook and print this off. They can write their evidence in the space provided or They can download an <u>electronic version</u> of the workbook. This file is in PDF (Adobe) format and it enables your HCSW to type and save information and if required amend and delete their evidence.
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Figure 39 - Induction checklist record – Part 8

Induction	fem	Dofaile		
Portal	e .	Details	Date Achieved	Tick box when completed
Step 5	Induction Governance	This section of the list is the final part of the induction checklist. As a manager, here is quick reminder of what your new start should have achieved	1/5/15	2
a A		If the new start is a HCSW, the workbook needs to be completed, reviewed and signed off. The induction checklist (this document) and Induction checklist (this document).	5 10	* n u
* u		 (first page) has been completed. Keep this in the Personnel File. The statutory/ mandatory training on LearnPro has been completed. A copy of the completed Induction checklist has been given to the employee and the original is in the personnel file of the new start. 	E V	×
		IMPORTANT- Please now complete the induction completion online form.		B a
	ĩ.	 This is important as it allows us to update the employee record on EMPOWER (HR database). If you do not complete and return this form, your member of staff will be listed as nor compliant and will be highlighted to HR 		
				32 3

END OF CHECKLIST

Induction	Ifem	Poteila		v
Portal			Date Achieved	Tick box when
Step 6	Profession and Role	Commission Of the Commission o		completed
		 Complete Step of Kole Specific Induction has been identified and agreed following completion of statutory/ mandatory training. 	24/17	7

Last Revised – June 2016

Figure 40 - Induction checklist record – Part 9

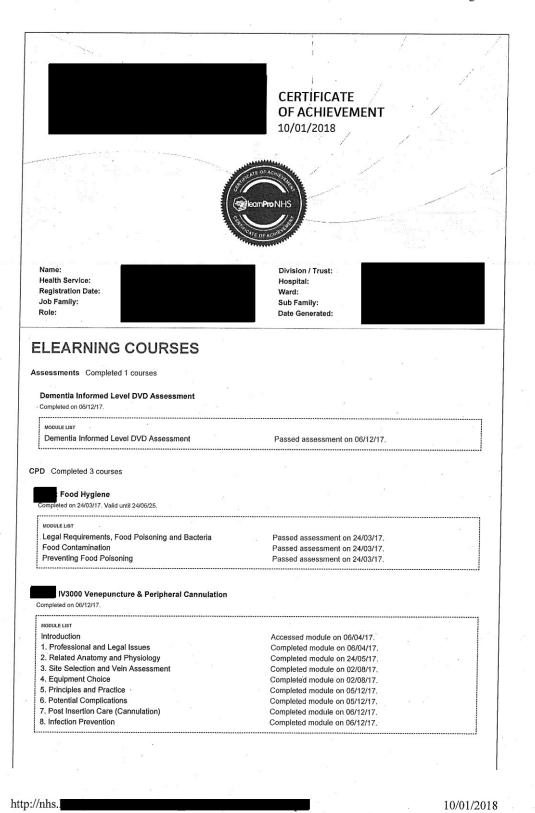


Figure 41 - Learn-pro courses - Part 1

10/01/2018

MODULE LIST -	
Management of Needlestick & Similar Injuries	Passed assessment on 28/12/17.
ection Prevention and Control Completed 1 courses	
UEO. Branchista and Management of One Evensus	
NES: Prevention and Management of Occ. Exposure Completed on 28/12/17.	
olus assessment is 40 minutes. Learning outcomes: - Recogni	introl Education Pathway. The anticipated learning time for module se risks of occupational exposure to blood and body fluids Take aging potential hazards including the safe management of sharps ure incident.
Prevention and Management of Occ. Exposure	Completed module on 28/12/17.
Prev. and Mgmt. of Occ. Exposure (Assessment)	Completed module on 28/12/17.
** a 4 0	3
tutory / Mandatory Completed 6 courses	
Adult Support & Protection - Basic ompleted on 27/03/17. Valid until 27/03/20.	
MODULE LIST	
Adult Support and Protection Act	Passed assessment on 27/03/17.
Child Protection - Level One ompleted on 06/12/17, Valid until 06/12/20.	
MODULE LIST	
Child Protection - Level one	Passed assessment on 06/12/17.
Child Protection Webinar	
impleted on 27/03/17.	
MODULE LIST	4
Child Protection Webinar	Accessed module on 27/03/17.
Equality and Diversity mpleted on 24/03/17. Valid until 24/06/25.	
IODULE LIST	
ntroduction to Equality and Diversity	Passed assessment on 24/03/17.
Fire Safety	
npleted on 24/03/17. Valid until 22/03/19.	
ODULE LIST	
ntroduction and General Fire Safety ire Prevention	Passed assessment on 22/03/17. Passed assessment on 24/03/17.
ire Fighting Equipment	Passed assessment on 24/03/17.
pecialist Roles	Passed assessment on 24/03/17.
ire Emergency within the Ward	Passed assessment on 24/03/17.
Health and Safety	
npleted on 06/04/17. Valid until 27/03/18.	

Figure 42 - Learn-pro courses – Part 2

http://nhs

Risk Assessment	Passed assessment on 27/03/17.	
Incident Reporting	Passed assessment on 27/03/17.	
Violence and Aggression	Passed assessment on 27/03/17.	
Manual Handling (Patient) - Legislation	Passed assessment on 27/03/17.	
Manual Handling (Patient) - Ergonomics	Passed assessment on 27/03/17.	
Manual Handling (Patient) - Anatomy	Passed assessment on 27/03/17.	
Manual Handling (Patient) - Causes of Injury	Passed assessment on 28/03/17.	
Manual Handling (Patient) - Efficient Movement	Passed assessment on 28/03/17.	
Manual Handling (Non Patient) - Legislation	Passed assessment on 28/03/17.	
Manual Handling (Non Patient) - Ergonomics	Passed assessment on 28/03/17.	
Manual Handling (Non Patient) - Anatomy	Passed assessment on 28/03/17.	
Manual Handling (Non Patient) - Causes of Injury	Passed assessment on 28/03/17.	
Manual Handling (Non Patient) - Efficient Movement	Passed assessment on 28/03/17.	
COSHH	Passed assessment on 04/04/17.	51
Display Screen Equipment	Passed assessment on 04/04/17.	
Lone Working	Passed assessment on 06/04/17.	

http://nhs.

Figure 43 - Learn-pro courses – Part 3

12.6.3. Sharp and Needlestick Injury Risk Assessment

Ionising Radiation Regulations 1999: Risk Assessment

Subject of Assessment	Use of sharps and associated disposal (including radioactive
Subject of Assessment	sharps).
Date of Commencement	26/10/2017
Hazards	Sharps injury including potential exposure to blood borne
Hazarus	viruses and/or contamination with radiopharmaceutical.
	Risk staff of sharp and needle stick injury.
	Safe sharps products are used in the majority of activities.
	Activities identified as a potential risk and/or not
	compatible/conducive with the use of safe sharps practices
	are outlined below:
	1. Drawing up radiopharmaceuticals from vials into syringes
	for patient and non-patient use.
	2. Drawing up pharmaceuticals from vials into syringes for
Description of rick	patient use.
Description of risk	3. Administering pharmaceuticals and radiopharmaceuticals
	to patients (several times per day).
	4. Re-sheathing needles for measurement of syringe
	radioactivity without contaminating the measuring device or
Colx.	work area (these sharps are not used on patients).
	5. Transfer of blood products between syringe and vacuette
	container.
	6. Preparation of blood samples for assay/reinjection.
	7. Disposal of sharps
	Clinical technologists, nursing staff, healthcare imaging
Staff involved	assistants, scientific and medical staff all undertake some
Stail involved	work within the department which carries the potential risk of
	needle stick injury.
Other Persons Involved	None.

Assessment

Existing Precautions

- Disposable protective gloves to be worn during preparation and administration of radiopharmaceutical/pharmaceutical.
- Only trained staff are permitted to prepare radiopharmaceuticals and/or manipulate volumes of unsealed radionuclide's with sharps.
- A blunt filter needle is required for pharmaceuticals drawn up from glass vials (e.g. furosemide, heparin). These must be resheathed using a Safe-T-Cap device in conjunction with a 'single hand' technique.
- A needle is required for vials with a bung i.e patient radiopharmaceuticals or pharmaceuticals. These must be resheathed using a Safe-T-Cap device in conjunction with a 'single hand' technique.
- Safety butterflies, venflons and cannulas are used for all IV administrations.

Activities 1, 2 & 3

- Only trained staff are permitted to administer radiopharmaceuticals and and/or pharmaceuticals intravenously. Training is via successful completion of an course, observation of a number of injections. And finally, competence will only be achieved once a number of successful injections have been undertaken under supervision.
- To avoid/minimise patient distress and subsequent movement staff explain the injection procedure to the patient warning immediately prior to injection.
- Sharps that have been in contact with a patient during IV administration are not re-sheathed and disposed of immediately.

Radiation protection measures require the use of syringe shields, these shields are not compatible with safety syringes. However these have not been in contact with any patient and the risk is low. Re-sheathed

needles are removed, disposed of directly to sharps container and replaced by a sterile syringe end cap prior to use, this practice minimised further use of non-sharp products. <u>Sentinel Node Studies (Breast):</u> Only trained staff are permitted to administer radiopharmaceuticals intra-dermally. Training is via successful completion of an course, observation of a number of injections. And finally, competence will only be achieved once a number of successful injections have been undertaken under supervision. The intra-dermal injections required for the procedure are undertaken using a diabetic insulin needle. Sharps that have been in contact with a patient during IV administration are not re-sheathed. Activity 3 Safety diabetic insulin needle are being trialled within the department, it should be noted that some operators have found difficulty using these i.e. significant back pressure from plunger during administration, resulting in compromise of technique. Compromise of the technique can result in the operator administering the radiopharmaceutical too deeply or depressing the plunger with force could result contamination of the area of interest. As this procedure is used to guide surgeons to radioactive lymph nodes in theatre, any compromise in the technique, as described, could result in this part of the surgical procedure being abandoned. Re-sheathing of syringes containing radiopharmaceuticals drawn up from glass vials is only permitted when a Safe-T-Cap device is used in conjunction with a 'single hand' technique. Activity 4 This practice is required to minimise the risk of radioactive contamination of the work area and radionuclide calibrator and therefore ensure accuracy of the measured activity administered to the

	patient. There have been no reported instances in the NE sector of
	needlestick injury using the re-sheathing Safe-T-Cap device so it is felt
	that the risk remains minimal.
	Blood volume studies: Two 9ml vacuette containers of blood are
	required at three discreet time intervals. Sampling is achieved via
	the use of an IV safety cannula with 20ml syringe attached. 20ml of
	blood is removed from the patient and the blood decanted into the
	two separate 9ml vacuette containers by removing their tops and
Activity 5	discharging the syringe without the use of a needle.
Activity 3	This deviation of safe sharp practice is required to minimise inaccuracies in blood sampling, direct use of two vacuette's is
	problematic in part due to the nature of the patient's blood disorder
	i.e. Polycythaemia, and can result in delays between sampling for a
	single time point. This in turn could affect the clinical result of the test.
	Blood volume studies: Blood products are manipulated using blunt
	mixing needles rather than safety sharps to eliminate the risk of a
	needlestick injury resulting in a blood borne virus risk. Safety
	sharps are not conducive to the transfer of blood products
	between the various containers required during the procedure.
	• Blood labelling and blood volume studies: Blood products for
Activity 6	reinjection are drawn up using a needle and syringe. The needles
,	are then re-sheathed using a Safe-T-Cap device in conjunction with
	a 'single hand' technique. Once the activity within the syringe has
	been measured the sheathed needle is removed and replaced by a
	safety cap.
	Limited distance between the retracted safety sheath and needle end
	within the receptacle containing the blood product restricts adequate
	insertion of a safety needle and causes difficulty when drawing up. Full
	I

	insertion of the safety needle into the blood would result in					
	contamination of the operators hand and/or working environment. In addition, patients attending for blood volume procedures often have very viscous blood, the use of mixer needles is prohibited due to the					
	potential for clots being drawn into the syringe for re-administration to					
	the patient. A needle is required to avoid clots being drawn into the					
	syringe.					
	Staff member should ensure sharps containers are available prior					
	to undertaking work involving the use of sharps, safety or					
	otherwise.					
	Needles used for patients should be disposed of in a sharps					
	container for disposal without disconnecting the needle from the					
	syringe – dispose of the whole assembly.					
	• Never leave sharps for someone else to tidy up – it is the					
Activity 7	responsibility of the staff member using the needle to dispose of it					
	properly.					
	Needles are disposed of in an approved puncture resistant sharps					
	container.					
	Do not overfill sharps containers.					
	• Full (3/4 full) sharps containers should be sealed for incineration					
	and placed into the waste store.					

In the event of a needlestick injury, the following facilities are in place:

• Appropriate hand washing facilities with elbow operated taps are provided in all areas where radioactive material is handled and injections carried out.

The poster 'Management of Needlestick Injuries and Exposures to Blood and High-Risk Body Fluids' is displayed in each section and details procedures to be followed if an incident occurs, which include:

- Encourage bleeding as much as possible and wash the injury under running water.
- Do not suck the injured area.

- Wipe the area with a small alcohol wipe (mediswab).
- Contact Occupational Health for advice.
- Report the incident
- Attend A&E if the injury occurs out of hours and Occupational Health staff are not available.

A formal record of the incident must be reported via DATIX and there is a follow-up procedure in place. Finally, further associated documentation can be accessed on staffnet and Hepatitis B Virus vaccination is provided for all staff members via Occupational Health.

Level of Risk - Is the control of this risk adequate?

Give more than one risk level if the assessment covers a range of circumstances. You can use the 'matrix' to show how 'likelihood' and 'consequences' combine to give a conclusion. Also, be critical of existing measures: if you can think how they might fail, or how they could be improved, these are indications of a red or orange risk.

Table 13 - Risk Matrix

<u>Likelihood</u>	<u>Impact/Consequences</u>					
	Negligible	Negligible Minor Moderate Major Extreme				
Almost Certain	Medium	High	High	V High	V High	
Likely	Medium	Medium	High	High	V High	
Possible	Low	Medium	Medium	High	High	
Unlikely	Low	Medium	Medium	Medium	High	
Rare	Low	Low	Low	Medium	Medium	
Very Hi	igh	High	Medium	Low		

Current risk level: Medium (likelihood <u>Unlikely</u>, the consequences/impact from a radiation exposure is <u>Low</u>. HOWEVER the consequence is considered <u>Major</u> from BBV).

Action Plan (if risk level is High (Orange) or Very High (Red)

Use this part of the form for risks that require action. Use it to communicate, with your Line Manager or Risk Coordinator or others if required. If using a copy of this form to notify others, they should reply on the form and return to you. Check that you do receive replies.

Describe the measures required to make the work safe. Include hardware – engineering controls, and procedures. Say what you intend to change. If proposed actions are out with your remit, identify them on the plan below but do not say who or by when; leave this to the manager with the authority to decide this and allocate the resources required.

Proposed actions to control the problem			
List the actions required. If action by	Pv Whom	Start Date	Action due date
others is required, you must send them a	By Whom	Start Date	Action due date
сору			

Action by Others Required - Complete as appropriate: (please tick or enter YES, name and date where appropriate)

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Assessor	Designation	Date	Review
Manager			

12.6.4. COSHH Risk Assessments

Department: Nuclear Medicine Ref no: Actichlor Tablets

Substance / Activity: Effervescent chlorine releasing tablet for cleaning blood spillages.

Surface disinfectant

Is there a safe system of work for the activity? Yes

Product / Trade	Hazard Classification	Chemical Nature	Route of Entry /
	(Corrosive, Harmful,	(aerosol, dust, fume, gas,	Exposure (Absorption,
Name / Mixture etc	Irritant, Toxic, Very Toxic)	liquid, powder, etc)	Ingestion, Inhalation, Injection)
			Inhalation;
Actichlor Plus Tablets	Harmful; Dangerous	Solid	intoxication; skin
Acticition Flus Pablets	to the environment	Solid	respiratory and eye
			irritation
			Contact with acid
Troclosene sodium;	0	\mathcal{O}	liberates to toxic gas;
organic acids;	D22, D26/27, D21,		very toxic to aquatic
arylsulfonates;	R22; R36/37; R31; R50/53	Soluable	organisms and may
Sodium fatty acid	Xn; N		cause long term
sarcosides	MI,		adverse affects in the
Co			aquatic environment.

Individuals or groups exposed	Staff
Duration of exposure	Intermittent
Does the substance have a W.E.L.?	No
	* If Yes, contact Occupational Hygienist /
	Health & Safety Practitioner
Is a Safety Data Sheet Available?	Yes

Existing Precautions

Summarise current controls in place	Describe how they might fail to prevent
Include any procedures for Storage,	adverse outcomes.
Transport, Handling, Disposal and	
Maintenance as well as the general use of	-
the substance.	
Store 0ºC-25ºC in a well ventilated, cool,	
dry cupboard and away from food and	
drink. Separate from acids and in original	
container.	
Use only in adequate ventilation and wear	
appropriate PPE.	
No smoking, eating or drinking when	
handling and wash hands after use. If clothes	Z,O *
and/or PPE contaminated remove.	

Emergency Procedures			
First Aid	<u>Spillages</u>		
Eye Contact: Flush eyes immediately with			
water for about 15mins making sure no			
contacts lens and lifting lids.			
Inhalation: Remove the victim to an area			
with fresh air and if required provide oxygen.			
Skin Contact: Wash with plenty of water. If			
clothes or shoes contaminated remove.			
Ingestion: Wash mouth with water and do			
not induce vomiting. Get medical help.			

Level of Risk - Is the control of this risk adequate?

Give more than one risk level if the assessment covers a range of circumstances. You can use the 'matrix' to show how 'likelihood' and 'consequences' combine to give a conclusion.

Also, be critical of existing measures: if you can think how they might fail, or how they could be improved, these are indications of a red or orange risk.

Table 14 - Risk Matrix

Likelihood	Impact/Consequences					
	Negligible Minor Moderate Major Extreme					
Almost Certain	Medium	High	High	V High	V High	
Likely	Medium	Medium	High	High	V High	
Possible	Low	Medium	Medium	High	High	
Unlikely	Low	Medium	Medium	Medium	High	
Rare	Low	Low	Low	Medium	Medium	
Low						

2000	
Health Surveillance/ Atmospheric Monitoring	
Is Health Surveillance or Atmospheric Monitoring	g of staff required?
(If yes, contact the Occupational Health Service/	

New & Expectant Mothers	
Are additional control measures required for new & expectant mothers?	No
If yes, please specify:	

Action Plan (if risk level is High (Orange) or Very High (Red)

Use this part of the form for risks that require action. Use it to communicate, with your Line Manager or Risk Coordinator or others if required. If using a copy of this form to notify others, they should reply on the form and return to you. Check that you do receive replies. Describe the measures required to make the work safe. Include hardware — engineering controls, and procedures. Say what you intend to change. If proposed actions are out with your remit, identify them on the plan below but do not say who or by when; leave this to the manager with the authority to decide this and allocate the resources required.

Proposed actions to control the problem			
List the actions required. If action by	By Whom	Start Date	Action due date
others is required, you must send them a			

сору		

Action by Others Required - Complete as appropriate: (please tick or enter YES, name and date where appropriate)

Report up management chain for action	
Report to Estates for action	
Contact advisers/specialists	
Alert your staff to problem, new working	
practice, interim solutions, etc	

Assessor	Designation	Date	Review
Manager			

All COSHH risk assessments should be correctly completed and a record kept. Initially, the substance must be described, including the name of the product, the respective hazard classifications including the associated R-Phrase (this appears on each label and is mandatory), the chemical nature (Liquid, gas, etc) and the route of entry and/or exposure (Inhalation; intoxication, etc).

In the COSHH risk assessment mentioned previously, Actichlor Tablets are classified as harmful and dangerous to the environment and is a R22 (Harmful if swallowed), R31 (Contact with acids liberates toxic gas), R36/37 (Irritating to eyes and respiratory system) and R50/53 (Very toxic to aquatic organism, may cause long-term adverse effects in aquatic environment).

General information about the groups exposed, duration of exposure, if the substances have a Workplace Exposure Limit (W.E.L), a safety data sheet available and the level of risk is completed on the form. To control and reduce the risks derived from Actichlor tablets the department must follow the precautions and the emergency procedures present in the risk assessment.

At these departments, the COSHH revision only occurs if the manufacture and/or a substance changes in the product, otherwise this document need be reviewed annually.