Chapter 5

Residues

Part 1 Veterinary Medicines Directorate (VMD) National Surveillance Scheme

1. Overview

1.1 Introduction

1.1.1 Statutory requirements

The UK has in place a statutory veterinary residue surveillance scheme in fulfilment of its obligations under Council Directives 96/22/EC, Annexes of 96/23/EC, Official Controls Regulation 2017/625 and The Official Controls (Animals, Feed and Food, Plant Health Fees etc.) Regulations 2019 SI 2019/1488.

This programme helps to ensure that consumers are protected against potentially harmful residues of veterinary medicines.

1.1.2 Co-ordination and collection

The Veterinary Medicines Directorate (VMD) is responsible for the co-ordination and management of the UK programme and for the management and operation of the National Surveillance Scheme (NSS) in GB.

The total number of samples required to fulfil GB's obligation is determined annually by the VMD, who will then request samples from individual slaughterhouses.

FSS undertakes the collection of samples from licensed slaughterhouses and Game Handling Establishments (GHEs) under contract with the VMD.

1.2 Legislation

1.2.1 Applicable legislation

The Animals and Animal Products (Examinations for Residues and Maximum Limits) (England and Scotland) Regulations 2015 SI No. 787 implements the requirements of Council Directives 96/22/EC and Annexes of 96/23/EC incorporated into Official Controls Regulation 2017/625.

The Directives require targeted sampling for veterinary residues. They lay down the frequency of sampling required for substances.

1.2.2 Sampling of suspect animals

The Directives and The Animals and Animal Products (Examinations for Residues and Maximum Limits) (England and Scotland) Regulations 2015 SI No. 787 also require sampling to be undertaken where the Official Veterinarian (OV) suspects or has evidence that animals have been treated with unauthorised substances or may contain residues of authorised substances above the maximum residue limits (MRL). Casualty animals without FCI should be considered for testing if their condition is likely to have required treatment.

1.2.3 Authorisation

All FSS Authorised Officers (AOs) must be authorised under The Animals And Animal Products (Examination For Residues And Maximum Residue Limits) (England And Scotland) Regulations 2015.

1.2.4 Powers of the AO

The Animals and Animal Products (Examination for Residues and Maximum Residue Limits) (England and Scotland) Regulations 2015 give FSS authorised officers:

- the power to detain and inspect animals prior to slaughter
- the power to detain animals for a further examination to be carried out and if necessary, samples of tissues/ fluids to be taken for analysis
- the power to detain the animal/ carcase or group of animals/ carcases until the results of the analysis is available

An AO has the power to take a sample from any animal, whether or not intended for human consumption.

1.3 FBO responsibility

1.3.1 Information on origin

Only animals for which full information of the farm submitting for slaughter or source (for example, market or collection centre) is available can be sampled. This information will be essential in tracing the owner, should further action requiring definite identification be necessary.

Slaughterhouse operators are required to keep such records on all animals, and it is an offence not to do so.

Regulation: The Animals and Animal Products (Examinations for Residues and Maximum Limits) (England and Scotland) Regulations 2015 SI No. 787 Regulation 31 (1).

1.4 FSS role

1.4.1 OV responsibility

The OV must:

- ensure that only authorised FSS staff carry out sampling
- ensure continuity of evidence when samples are collected, prepared, labelled, stored and despatched
- always obtain indisputable evidence for the origin of the animals sampled
- where the farm submitting for slaughter is unknown, determine the most recent origin by giving the name and status of the person supplying the animal to the slaughterhouse
- file a hardcopy of completed RIM 1 form
- record in the daybook a confirming the collection of RIM samples including the RIM reference number
- timely inform the FBO or their representative the selected / sampled animal(s) or carcase(s), along with details of the substance the sample will be tested for. The FBO may choose to separate the meat from that animal/ carcase/ offal from a wider batch, depending on planned processing/ distribution of that specific batch (e.g. if the meat is intended to be stored frozen for a longer time, meaning there is the possibility for a positive/ failed RIM sample result to come back while the meat is still either within their control or on the market, but not fully consumed yet)
- agree the way of informing the FBO with regards to the sampled carcases and document this in the plant daybook.
- FSS staff must check that the FBO keeps source records according to the requirements of the regulations.

Regulation: The Animals and Animal Products (Examinations for Residues and Maximum Limits) (England and Scotland) Regulations 2015 SI No. 787 Regulation 31 (1).

1.4.2 Action if no or inadequate records

The AO must bring to the attention of plant management and the OV if no records of the farm submitting for slaughter are kept, or if the records are deficient.

The OV is to follow the hierarchy of enforcement, and:

- record any discussion with the FBO in the daybook
- confirm the deficiency in writing

  Note: a specimen letter (see Annex 1) suitable for this purpose is included in this chapter

- send a copy of the letter to FSS Operations with the monthly reports
- keep a copy in the plant file
- enter details onto the Enforcement Programme (OWS)
- make a further check of records within 28 days of delivery of the above letter
- if records are still inadequate, make a Referral for Investigation

  Reference: See chapter 7 on 'Enforcement' for additional information.

  Reference: See chapter 9 on 'Forms'.

This avenue for enforcement action is also an option, accepting that traceability, FBO's non-compliance with their own SOPs on identification etc. may be the first point of call for OVs encountering this type of issue.

1.4.3 Examples of inadequate records

Here are two examples of inadequate FBO records:

- name and address of producer / last owner not recorded
- FSS records indicate 20 animals were presented for ante-mortem inspection – FBO records only show 18 animals have been delivered.

1.5 Cross contamination of samples

1.5.1 Purpose of National Surveillance Scheme

The aim of the NSS is to detect whether authorised Veterinary Medicinal Products (VMPs) are being used in food producing animals and that the conditions attached to authorised VMPs are being observed. It also detects use of unauthorised substances and contaminants.

1.5.2 Follow-up action

The Directives and the Animals and Animal Products (Examination of Residues and Maximum Residue Limits) (Scotland) Regulations 2015 require follow-up action to be taken where:

- samples are found to contain residues of veterinary medicinal products above the permitted maximum residue limit, or

- where residues of unauthorised substances or contaminants have been detected.

In case of detected prohibited substances or contaminants and residues of veterinary medicinal products above the permitted maximum residue limit VA must be informed and technical advice should be provided to the OV in relation to the outcome of the risk assessment.

In all cases of non-compliant test results, SFCIU should be informed via email.

This could involve legal proceedings and consequently it is important that the instructions given in this chapter are followed.

1.5.3 On-farm investigation where a non-compliant test result is recorded

When a sample tests non-compliant, a Veterinary Officer from Animal and Plant Health Agency (APHA) visits the farm of origin of the sample to carry out an investigation as to how the residue in the sample may have occurred. As part of this investigation APHA will request details of the Food Chain Information (FCI) submitted to the FBO.

1.5.4 When FSS staff should not act as sampling officers

Laboratory analytical methods are extremely sensitive in identifying and measuring banned substances, down to less than 1 part per billion. It is because of this sensitivity that sampling officers who may have been exposed to certain medicinal products taken by them, by members of their family or by pets, should not take samples during the course of the treatment.

A list of those compounds that are, potentially, the most likely to cause problems is shown in the following table: some of these substances can also be prescribed to companion animals.

Sampling officers should not carry out any sampling during the treatment period. If the sampling officers are unsure, please contact the VMD for advice.

Type of Medication	Active Ingredients	May be used in the treatment of
Inhaler (containing beta-agonists)	• Formoterol • Salbutamol • Salmeterol	Asthma
Skin creams (containing steroids)	• Betamethasone • Hydrocortisone	Skin conditions, such as dermatitis
Non-steroidal anti-inflammatory gels	• Ibuprofen	Pain relief, headaches, arthritis, fever

Other topical preparations	• Antibiotic or anti-inflammatory eye drops • Chloramphenicol eye ointment	Bacterial eye infections
Tablets	• Steroids	Joint disease, auto-immune disease

2. Sampling

2.1 Sampling programme

2.1.1 Sampling requests

Establishments will receive requests each quarter from VMD to collect samples from cattle, sheep, goats, pigs, horses, poultry and game for residue analysis. The RIM 1 form is the Primary Sample Request form and contains pre-printed information on animals to be selected for sampling.

VMD will send RIM 1 forms to individual plants, unless a base plant has been designated by prior agreement.

Note: Samples must be collected exactly as described in the month specified on the RIM 1.

The animal(s) selected for sampling must fit the information on the RIM 1.

Reference: See Annex 2 for a sample RIM 1 form.

2.1.2 When to collect

Samples required for a specified month must be collected during the month stated, spread as evenly as possible throughout the month and not all collected on the same day.

Avoid collecting multiple samples from a single producer; collect only one sample for a specified residue from animals from the same farm submitted for slaughter, on the same day.

2.1.3 RIM 1 reference number

Each RIM 1 form has a unique Sample Reference Number (RIM No), which must not be altered. The number must be quoted in any correspondence about the sample and recorded in the daybook on the day of sampling.

2.1.4 RIM labels

Each RIM 1 form is accompanied by an adhesive label printed with:

- the sample description
- sample reference number (RIM No) and bar-code

2.1.5 Samples from animals intended for human consumption

Samples must only be taken from animals, poultry or game intended for human consumption, and not from cull schemes.

2.1.6 Selection criteria

Animals must be selected taking into account the criteria that appears on the RIM 1 form and the criteria below:

- species, sex, age and farming system
- information about the producer
- indication of the use of pharmacologically active substances
- normal use of pharmacologically active substances in the particular production system
- other factors which may make it appropriate to 'target' certain animals for sampling; for example:
    - animals selected for hormonal growth promoters should be well muscled and a good size for their age
    - animals that are small for their age may be appropriate for sampling for antimicrobials since illness could affect their growth, and therefore they are more likely to have been treated

Instructions on the sampling of 'suspect' animals can be found in section 3 on 'Suspect substances, animals and carcases' in part 1 (see 1.2.2 - Sampling of suspect animals).

2.1.7 Identification of animals

Animals suitable for sampling are to be individually identified, either before or after slaughter. If identified before slaughter, the identification of the animal must be preserved at flaying by using one of the following methods:

- attach a talisman tag
- apply a cut mark
- attach a detained tag
- note the slap mark/ tattoo
- note the animal ID (i.e. ear tag) and correlated kill number
- applying a gap in the line for keeping correlation through the slaughtering process

Note: In the case of poultry, it is sufficient to identify the batch from which the sample(s) are to be taken.

2.1.8 Sample security and continuity of evidence

The results of analyses for all substances could lead to legal proceedings. It is important that there is continuity of evidence; therefore, samples must be accurately identified and secured in a FSS freezer.

The names of all AOs involved in collecting or handling samples must be recorded in the freezer log. The name and signature of the sampling officer must be the same as that on the RIM 1 form and the tamperproof bag.

2.1.9 Completing the summary worksheet

Record the following information on the Summary Worksheet:

- date of collection
- date of despatch
- consignment note number

2.1.10 Sampling not possible

Where a sample collection fails due to insufficient material or where sampling is not possible (for example, due to plant closure, killing pattern or availability of species requested), the OV is to:

- complete the RIM 1 form remarks box, giving the reasons why the sample cannot be taken
- return RIM 1 form to:

Veterinary Medicines Directorate
Residue Section
Woodham Lane

New Haw
Surrey
KT15 3LS

Send an email to the SLA and Contracts Team (operations@fss.scot) explaining why the sample was not collected.

Note: Due to health and safety considerations, poultry serum samples are not to be taken from un-stunned birds in Halal establishments. The remarks box of the RIM 1 should be completed accordingly in the event that any such sampling requests are received by a plant.

2.2 Sampling equipment

2.2.1 Use of containers

It is important that only the specified sampling containers are used, as failure to do so may result in the sample being rejected by the laboratory as un-assayable.

2.2.2 Supplies

VMD will supply:

- RIM 1 forms
- adhesive labels
- summary worksheets
- sampling equipment
- tamperproof bags

OVs should maintain sufficient supplies of polystyrene boxes, outer cartons and Freezella packs at the slaughterhouse.

Note: The laboratory will return RIM boxes after use to Top Speed for one-to-one exchange on the next collection.

If a replacement box is not left at the point of collection, please contact Top Speed directly at rim@topspeedcouriers.co.uk or 0800 856 2464 to arrange delivery of the required equipment (copying in operations@fss.scot).

2.2.3 Sampling equipment orders

Sampling equipment can be re-ordered by contacting:

residues@vmd.gov.uk or by calling 01932 338329

2.3 Red meat: Collecting samples

2.3.1 Samples to collect

Kidney, kidney fat, liver, muscle, blood, urine and blood for serum or plasma analysis must be collected from the identified and/or marked carcases. All samples apart from blood collection must be collected from carcases that have been inspected and passed as fit for human consumption.

The AO who collects the sample is to record the sample collection into the FSS OWS system under “sample request”.

The quantity of material collected from each species must be that specified in the table below.

Sample	Species	Where to collect	Amount	Container
Kidney	Sheep/ goats	At the post-mortem inspection point	A pair of kidneys	Sealable plastic bag
	Pigs	At the post-mortem inspection point	One whole kidney	Sealable plastic bag
	Cattle/ horses	At the post-mortem inspection point	A portion of kidney; at least 100g taken from one pole so as to exclude pelvic tissue	Sealable plastic bag
	Calves	At the post-mortem inspection point	A pair of kidneys	Sealable plastic bag
Kidney fat	Cattle/ sheep/ goats/ pigs	At the post-mortem inspection point	At least 50g of kidney fat	Sealable plastic bag
Liver	Cattle/ sheep/ goats/ pigs/ horses	At the post-mortem inspection point	At least 100g of liver	Sealable plastic bag
Muscle	Cattle/ sheep/ goats/ pigs/ horses	At the carcase inspection point	At least 200g of muscle from the diaphragm region of the animal	Sealable plastic bag

Urine	Cattle/ sheep/ pigs	After removal from carcase by incision into the bladder	At least 50ml	100ml pot then sealable plastic bag
Blood (serum)	Cattle/ horses	At the sticking point or pluck point (heart). Blood collected directly at the sticking point, into the plastic vending cup provided and after the initial flow of blood has slowed. **Reference**: See sub-section 2.4 on 'Collecting blood for serum and plasma analysis' in part 1 for additional information	At least 30ml	3 x Sarstedt blood tubes then into absorbent wallet, keeping tubes upright
Blood (plasma)	Cattle/ horses		At least 75ml	2 x Li-heparin LH/ 25ml monovette then absorbent wallet, keeping tubes upright

Note: Where collection at the sticking point poses a potential risk to the AO, for example, from carcase kicking, blood should be taken from the heart on the pluck line into the plastic vending cup provided.

A small incision can be made into one of the four chambers of the heart and blood carefully poured into the cup.

2.3.2 After sampling

Immediately after collection, the container or bag must be correctly sealed to avoid leakage and placed into a tamperproof bag with the absorbent pad.

Reference: See the sub-section 2.8 'Tamperproof bags' in this section for additional information.

2.4 Red meat: Collecting blood for serum and plasma analysis

2.4.1 Serum analysis

You must follow the correct procedure for collection of blood for serum analysis as described in the table below:

Step	Action
1	Collect at least 50ml of blood into the plastic vending cup provided for immediate transfer into 3 x 10ml serum tubes.
2	Remove the screw cap on the top of the serum tube ensuring that the beads are in the bottom of the tube.
3	Pour the blood into the tubes, filling to the line below the threaded top. **Caution**: Do not overfill or some beads may float to the top and be lost. The beads are coated in a substance that acts as a clotting activator to ensure that the blood clots and the serum becomes separated.
4	Replace the screw cap on each tube.
5	Invert each tube gently 4-5 times to ensure the blood is mixed with the beads. **Note**: **THE TUBE SHOULD NOT BE VIOLENTLY SHAKEN**; doing so may cause haemolysis and the sample would therefore be deemed un-assayable by the laboratory.
6	Write the RIM numbers on each tube in the space marked 'Ref No'. Keep the test tubes stored upright in the four bay absorbent wallets and in a cool place (preferably in a refrigerator) prior to despatch. (Each wallet can accommodate one sample of three tubes).
7	When ready for despatch, place the wallet inside the tamperproof bag and seal it.(NB never place the RIM 1 form inside the bag)
8	Fold the tamperproof bag over so that the signatures and barcode label are folded in on themselves. Place the tamperproof bag securely inside the polystyrene box. **Note:** Do not tape the tamperproof bag to the inside of the polystyrene box.

2.4.2 Sample handling

These samples must be:

- packaged according to the instructions in this topic
- despatched separately from other samples

- despatched on the same day of collection for bovine animals not requiring a BSE test

Reference: See sub-section 2.10 on 'Packaging and despatch of samples' in part 1 for additional information.

Note: This will require that the courier is booked prior to taking the sample.

Caution:

- Samples can be refrigerated or kept in a cool dark place until collected by Top Speed.
- Samples must not be frozen.
- Please ensure that you place 2 unfrozen Freezella packs in the box. The polystyrene casing may be chilled before use.
- Keep box out of direct sunlight.
- Despatch Monday to Thursday only.

2.4.3 Packing serum samples for despatch

Samples are to be packed for despatch as follows:

Step	Action
1	Place the tamperproof bag containing the samples securely into the polystyrene box. **Note:** Fold the tamperproof bag over so that the signatures and barcode label are folded in on themselves.
2	Seal the polystyrene box.
3	Place the top two copies of RIM 1 form on top of the polystyrene lid.
4	Place polystyrene box in cardboard outer carton.
5	Apply the adhesive address label provided by the carrier to the outer carton across the box flaps. Ensure all other labels on the carton are removed.
6	Mark the box with 'This Way Up' to ensure careful handling.
Caution: RIM 1 forms must not be sent separately from the samples to which they relate.	

2.5 Poultry meat samples

Samples of liver and muscle must be taken from identified birds that have been inspected and passed as fit for human consumption.

The AO who collects the sample is to record the sample collection in the OWS system under “sample request”.

The following table gives details of the types of samples and the quantity required.

Sample	Species	Where to collect	Amount	Container
Liver	Chickens and ducks	Evisceration inspection point	50g pooled from at least 6 birds	Sealable plastic bag
Liver	Turkeys	Evisceration inspection point	50g pooled from at least 2 birds	Sealable plastic bag
Breast muscle	Chickens, ducks and geese	Taken off line to enable muscle to be cut off	200g from 1 bird	Sealable plastic bag
Breast muscle	Turkeys	Taken off line to enable muscle to be cut off	200g from 1 bird. Sample can be taken from more than one bird in a co-located cutting plant where there is sufficient traceability	Sealable plastic bag
Blood (serum)	Chickens, ducks and turkeys	Shortly after neck cutting point **Reference:** see sub-section 2.5.1 Serum analysis in part 1 for additional information	30ml from at least 6 birds	3 x Sarstedt blood tubes

Tissue samples must be placed immediately into the sealable plastic bag provided, then into a tamperproof bag.

2.5.1 Serum analysis

Follow the procedure for the collection of blood for serum analysis as described in the table below. Blood can be safely collected once birds have ceased swinging after cutting.

Step	Action
1	Using the plastic vending cup provided, collect at least 30 ml of blood from at least six birds from the same flock. Only sample birds from single sheds, do not sample birds from mixed sheds. **Note:** Blood can coagulate quickly so collect enough for one tube at a time.
2	Remove the screw caps from the tops of the three Sarstedt serum tubes ensuring that the beads are in the bottom of the tube. **Note:** These beads are coated in a substance that acts as a clotting activator to ensure the blood clots and the serum becomes separated.
3	Follow steps 3; 4 and 5 described in subsection 2.4.1 Serum analysis
4	
5	
6	Write the RIM number on each tube in the space marked 'Ref No'. Keep the tubes stored upright in the four-bay absorbent wallet and in a cool place (a dark place or refrigerator) prior to despatch. Each in a cool place (a dark place or refrigerator) prior to despatch. Each wallet should contain one sample only. One sample = 3 tubes from 6 birds from the same batch.
7	Follow step 7 and 8 described in subsection 2.4.1 Serum analysis
8	

2.5.2 Sample handling

Important: Same handling provisions must be applied as described in subsection 2.4.2 Sample handling.

2.5.3 Packing serum samples for despatch

Samples are to be packed for despatch following the steps detailed in the subsection 2.4.3 'Packing serum samples for despatch'.

2.6 Game samples

Samples from small and large game must be taken from carcases which have been passed as fit for human consumption and for which the origin or source can be identified.

The AO who collects the sample is to record the sample collection into the OWS system under “sample request”.

Sample	Species	Where to collect	Amount	Container
Kidney	Deer	After post-mortem inspection	A whole kidney	Sealable plastic bag
Kidney Fat	Deer	After post-mortem inspection	At least 50g of kidney fat	Sealable plastic bag
Liver	Deer, partridge, pheasant, red grouse	After post-mortem inspection	At least 100g liver	Sealable plastic bag
Muscle	Deer	After post-mortem inspection	At least 50g of diaphragm muscle	Sealable plastic bag
Muscle	Partridge, pheasant, quail	Inspection point at the end of the line	An oven ready carcase	Sealable plastic bag

Definitions:

- Farmed game is animals which are not domestic but have been reared within a restricted area. Samples will be requested from deer, partridge, pheasant, red grouse, quail and wild boar. These will be requested from slaughterhouses approved to handle the species.
- Wild game is animals that are hunted and shot in the wild for human consumption. Samples will be requested from deer. These will be requested from Game Handling Establishments.

  For more information on wild game please consult the Wild Game Guide at Wild game guides and HACCP | Food Standards Scotland.

Note: Tissue samples must be placed immediately into the sealable plastic bag provided, and then into a completed tamperproof bag.

2.7 Completing the RIM form

2.7.1 Details to record

The following details must be fully recorded on the RIM 1 form:

- sex and age of animal sampled
- identification of the animal sampled; this enables the AO to cross check with the slaughter records to establish the source of the animal – types of identification:
  - ear tag number for cattle, sheep and goats
  - slap mark, ear tag or tattoo for pigs
  - farm address for poultry
  - hunter's declaration and address of the forestry for wild game
- for cattle the breed of animal sampled (including cross breeds)
- whether the animal is from organic production
- obtain from the slaughterhouse or game handling establishment records of:
  - the farm submitting for slaughter, or if unavailable, the source of animals sampled such as market and lot number, and
  - the name and status of the person supplying the animal to the slaughterhouse
  - any extra information, for example kill numbers, which may help in any subsequent tracing
- the date of collection of the sample
- the date of despatch of the sample
- name and designation of collecting officer; this must be the same as on the tamperproof bag
- carrier consignment reference number.

Note: If you make an error when recording any of the above data on the RIM 1 form, or anything is unclear that might need going over again, cross through the entry and enter the correct details, **then initial the change**. Any necessary amendments must be made before the copies of the RIM 1 form are separated. Do not use correction fluid. The original 'incorrect' entry must be legible.

If replacement sampling kit or paperwork is required, email VMD with details of your request to residues@vmd.gov.uk (copying in operations@fss.scot), stating your requirements.

2.8 Tamperproof bags

2.8.1 Use of tamperproof bags

Tamperproof bags are an important stage in maintaining continuity of evidence, since the detection of residues in a sample may result in an investigation and potential legal proceedings.

2.8.2 Sealing

Tamperproof bags should be sealed as per below:

- remove the blue strip
- press the orange strip down over the glue firmly
- check the bag is sealed properly before labelling
- check the bag has been signed by the sampling officer and witnessed by the FBO representative.

Note: The sampling officer must be the same person that signed the RIM 1 form.

Wherever possible this should be done in the presence of the FBO or person responsible for the source of the sample.

2.8.3 How to label tamperproof bags

Labelling must be carried out immediately after each sample is taken. As far as reasonably possible, completion of labelling should be done in the continued presence of the FBO or person responsible for the source of the sample.

Step	Action
1	Attach the white bar-coded sample label to the front of the bag in the marked space before putting the sample in the tamperproof bag. **Caution:** Ensure that the bar code label is not creased or otherwise damaged whilst sticking it to the bag.
2	Sign and date in the space provided (must be the same person that signed the RIM 1 form). **Note:** Use only ballpoint to write on the bag.
3	The owner or person responsible should also sign and date the tamperproof bag as a witness, confirming that the information recorded on it is correct. **Note:** Refusal to sign should be noted on the front of the bag. Second witness (FSS AO or FBO representative) shall also sign and date the tamperproof bag.

4	Place the sample in the tamperproof bag and seal by removing the blue strip.
5	Once sealed, the bag must not be opened until the sample has reached the laboratory.
6	Record the names of all authorised staff involved in collecting samples in the daybook.

2.9 Storage of samples

2.9.1 Chilling and freezing

Once the sample has been sealed in the tamperproof bag and the bag has been labelled, samples must be kept chilled from the time of collection and during preparation. With the exception of blood collected for serum and plasma analysis, samples should then be hard frozen from the day of collection.

Note: If necessary, samples must be kept cool by means of insulated containers containing frozen Freezella packs/ Biotherm dry ice shippers.

Samples must be frozen at a temperature between -15°C and -20°C, **for a minimum of 48 hours** in a lockable, dedicated FSS freezer. Maintain the samples hard frozen (i.e. not thawed once frozen) until despatch.

Note: The freezer compartment of a domestic refrigerator is not adequate for hard freezing samples.

2.9.2 Freezing of samples prior to despatch

When freezing samples:

- in large chest freezers:
  - place samples in the polystyrene box
  - leave the lid off the polystyrene box and freeze the whole box containing samples

OR

- in small freezers:
  - leave samples in freezer until ready for despatch, then place in polystyrene box.
  - To avoid samples defrosting prior to testing do not over fill the box and send two boxes if necessary.

2.10 Packing and despatch of samples

2.10.1 Packing samples for despatch

Note: These instructions apply to all surveillance samples except serum and plasma.

Reference: See sub-sections 2.4.1 and 2.5.1 Serum analysis in part 1 for additional information.

Samples are to be packed for despatch as follows:

Step	Action
1	Place a frozen Freezella pack / Biotherm dry ice shipper at the base of the polystyrene box.
2	Place the frozen samples in the box.
3	Place the second Freezella pack / Biotherm dry ice shippers on top of samples.
4	Follow the steps from 2 to 6 described in 2.4.3 Packing serum samples for despatch
Note	To prevent movement, small samples should be wrapped with the Freezella pack / Biotherm dry ice shipper in insulating material before being placed into a polystyrene box. In periods of hot weather, add an extra Freezella pack / Biotherm dry ice shipper to avoid thawing. **Caution: RIM 1 form must not be sent separately from the samples to which they relate.**

2.10.2 Despatching samples

Samples are to be despatched to the laboratory after a minimum of 48 hours hard freezing. **Despatch must be no more than five working days after collection**, including the day of collection, as this can lead to sample deterioration, and delay the on-farm investigation of non-compliant samples that may result.

The online courier despatch process is detailed in Annex 19.

Note: Serum and plasma samples from bovine animals not requiring a BSE test must be despatched on the same day as collection.

Note: Samples must not be sent on Fridays or on days preceding public holidays.

2.10.3 Despatch of all residue samples

FSS officers at slaughterhouses must send all red meat, poultry meat, game meat and suspect samples to:

Residues Statutory Programme
Fera Science Ltd
Room 50G30, Sand Hutton, York, YO41 1LZ

2.10.4 Despatch failure

Should despatch fail, you must make an attempt to rearrange despatch:

- ensure the samples have not thawed
- follow points 1 to 3 in sub-section 2.10.3 on 'Despatching samples' in part 1, explaining the reasons behind the failure.

The OV should then telephone VMD (01932 338329) and email operations@fss.scot to explain the failure and what follow up action has been taken.

2.10.5 Retention of documents

After completion of each month's sampling, the completed Summary Worksheet and RIM 1 form should be retained in plant for 1 year.

2.10.6 Complaints procedure

Should Top Speed fail to collect samples within the agreed timeframe, contact the SLA team by emailing operations@fss.scot, which will escalate the failure to Top Speed headquarters.

3. Suspect substances, animals and carcases

3.1 Suspicion of unauthorised substances, authorised veterinary medicines above the MRL and/or contaminants:

3.1.1 Sampling of suspect animals

The Directive requires sampling to be undertaken where the OV suspects or has evidence that animals have been treated with unauthorised substances or may contain residues of authorised substances above the MRL.

3.1.2 Procedures

This topic covers the action to be taken when there are grounds to suspect that a carcase or live animal contains:

- prohibited substances
- unauthorised substances
- residues of an authorised substance at concentrations above the maximum residue limit (MRL)
- a contaminant above the threshold level for signs that would give rise to suspicion.

Term used	Meaning
Prohibited substance	Means any beta-agonist, hormonal or thyrostatic substance, and those specified in Table 2 to Commission Regulation (EU) No 37/2010 and in Maximum Residue Limits in Great Britain.
Unauthorised substance	Means any substance not included in Table 1 to Commission Regulation (EU) 37/2010 and in Maximum Residue Limits in Great Britain.
Authorised substance	Means a substance specified in Table 1 to Commission Regulation (EU) No 37/2010 and in Maximum Residue Limits in Great Britain.

The following table contains a list of prohibited substances contained in Table 2 of Commission Regulation (EU) 37/2010 and Maximum Residue Limits in Great Britain:

Annex IV Substances
Aristolochia ssp and preparations thereof
Chloramphenicol
Chloroform
Chlorpromazine
Colchicine
Dapsone
Dimetridazole
Metronidazole
Nitrofurans (including Furazolidone)
Ronidazole

3.2 Suspect live animals

3.2.1 Inspection of animals under Regulation 20

Under the Residues Regulations, AOs have the power to detain an animal or group of animals for inspection to ascertain whether they have been treated with an unauthorised substance.

Regulation: The Animals and Animal Products (Examinations for Residues and Maximum Limits) (England & Scotland) Regulations 2015 SI No. 787 Regulation 20.

3.2.2 Suspicion of illegal substances

If the OA suspects that an animal has been illegally treated with an unauthorised substance they must notify the OV immediately of their suspicions and this should be escalated to the VA.

The OV should serve a **Form E** notice if the FBO or slaughterhouse staff do not co-operate in allowing the inspection to take place.

Reference: See Annex 9 for a sample **Form E** notice.

3.2.3 Signs of hormone growth promoters: live animal

The following signs in a live animal may indicate the illegal use of hormone growth promoters:

- secondary sexual characteristics
  - crest development
  - teat development
- restlessness; animals do not settle in the lairage, mill around
- behavioural changes
  - mounting
  - aggression
- an even level of finish in a group of cattle of different breed / types.

3.2.4 Signs of beta-agonist: live animal

The following signs in a live animal may indicate the illegal use of beta–agonist growth promoters:

- good conformation with little fat
- hyperaesthesia and tachycardia may be present

3.2.5 Result of inspection

If after carrying out the inspection, the OV is satisfied that the animal has not been treated with an unauthorised substance, they should lift the **Form E** notice by serving a **Form F** notice on the owner or person in charge of the live animals.

Reference: See Annex 10 for a sample **Form F** notice.

3.2.6 Examination of animals under Regulation 21

If, as a result of the inspection referred to above, the OV still suspects that the animal or group of animals may contain an unauthorised substance, a **Form G** notice should be served on the owner of the animal(s) to detain them for further examination. This

notice will remain in place until the results of the examination, including analysis of samples, are known.

Reference: See Annex 11 for a sample **Form G** notice.

The OV should make a detailed examination of the animals, taking account of appropriate H&S practicalities. This must include checking for evidence of implants and other signs which could indicate the use of unauthorised substances.

3.2.7 Samples to take

- Where an implant is not found but the OV is suspicious of the illegal use of other prohibited substances, you should take the following samples taking into consideration H&S and practicalities:
- For suspicion of hormones treatment – collect blood and either urine or faeces
- For suspicion of beta-agonists treatment – collect urine.

If other unauthorised substances are suspected then advice should be sought from the VMD on 01932 338329 or residues@vmd.gov.uk on the appropriate samples to be collected.

3.2.8 Slaughter of detained animals

Animals must not be held in the lairage for more than 48 hours. As it is unlikely that the results of analysis on the sample will be available, the animal should be slaughtered, and the carcase and offal detained under Regulation 34(2).

Reference: See sub-section 3.3 on 'Suspect carcases' in part 1 for additional information.

3.3 Suspect carcases

3.3.1 Detention under Regulation 20(1)

The OV has the power under Regulation 20(1) and 21(1) of the Residues Regulations to detain and sample any carcase if they suspect the illegal use of unauthorised substances, or if they suspect that an authorised substance in excess of the MRL may be present in the animal concerned.

The OV must serve **Form C** on the owner or person in charge of carcase(s). This will remain in force until investigations are completed.

Reference: See Annex 7 for a sample **Form C** notice.

3.3.2 Signs of authorised substances above the MRL

The following signs may raise concerns that a carcase contains authorised substances, such as veterinary medicines, above the MRL:

- signs of recent illness, particularly:
  - mastitis (signs may be seen prior to removal of udder)
  - lameness/ arthritis
  - pleurisy/ pneumonia
  - poor condition
  - metritis (signs may be seen prior to evisceration or during inspection of the offal)
- emergency slaughter animals
- injection sites, particularly:
  - bruising/ discoloration
  - smell (especially with tetracyclines)
  - swellings

Note: For injection sites with an oily adjuvant, consider illegal hormone treatment.

3.3.3 Signs of hormone abuse: carcases

The following signs may indicate the illegal use of hormones in a carcase:

- presence of implants or pellets
- injection site
- if detected and an oily adjuvant is present, or when the site is in an unusual place, the possibility of the presence of injectable hormones should be considered.

3.3.4 Signs of beta-agonists: carcases

The following signs may indicate the illegal use of beta-agonists in a carcase:

- good conformation with little fat
- flaccidity of the trachea.

3.3.5 Evidence of implants

If there is evidence of an implant in the ear, you must detain the carcase and submit the whole ear containing the implant for analysis.

If the implant is discovered in any other part of the carcase, then the surrounding tissue should be excised with the implant and submitted for analysis. Do not attempt to dissect the implant out before despatch.

3.3.6 Types of implant

The table below lists the types of hormonal growth promoter implants which may be found:

Name of Product	Type of Implant	Active Ingredients	Withdrawal period	Sex of animal used in
Compudose 200	Cylinder	17β-oestradiol 24mg	0	Steers
Compudose 365	Cylinder	17β-oestradiol 45mg	0	Steers
Finaplix	15 yellow pellets	Trenbolone 140mg	60 days	All
Forplix*	No description available	Trenbolone 140mg Zeranol 36mg	Never licensed in the UK	*
Implixa BF	10 white pellets	Testosterone 200mg oestradiol 20mg	90 days	Females
Implixa BM	10 white pellets	Progesterone 200mg oestradiol 20mg	90 days	Males
Ralgro	3 white pellets	Zeranol 36mg	70 days	All
Revlor	8 yellow pellets	Trenbolone 140mg oestradiol 20mg	60 days	Steers, male and female veal calves
Synovex C	4 yellow pellets	Progesterone 100mg oestradiol benzoate 10mg	0	Males
Synovex H	8 white pellets	Testosterone 200mg oestradiol 20mg	0	Females
Synovex S	8 yellow pellets	Progesterone 200mg oestradiol 20mg	0	Males

3.4 Sampling and despatch procedures for suspect live animals and suspect carcases

3.4.1 Sampling equipment

If an animal needs to be tested as a suspect, use the sampling kit provided by VMD for routine requests and replenish by emailing FSS Operations Mailbox Operations@fss.scot

A consolidated order will be sent to VMD each Friday and the kit will be despatched to the specified plant.

3.4.2 Suspect RIM1 form

Complete the RIM 1 form marked 'SUSPECT' which is provided at Annex 15. If a particular hormone or substance is suspected note it on the form

- Take two copies of the completed form:
  - two for despatch to the laboratory
  - one to be retained in the plant file for 12 months from the date of sampling

3.4.3 Sample reference number to use

The OV should generate their own sample reference number using the following:

- slaughterhouse approval number
- the last two digits of the year
- a sequential number (approval/ year/ number)

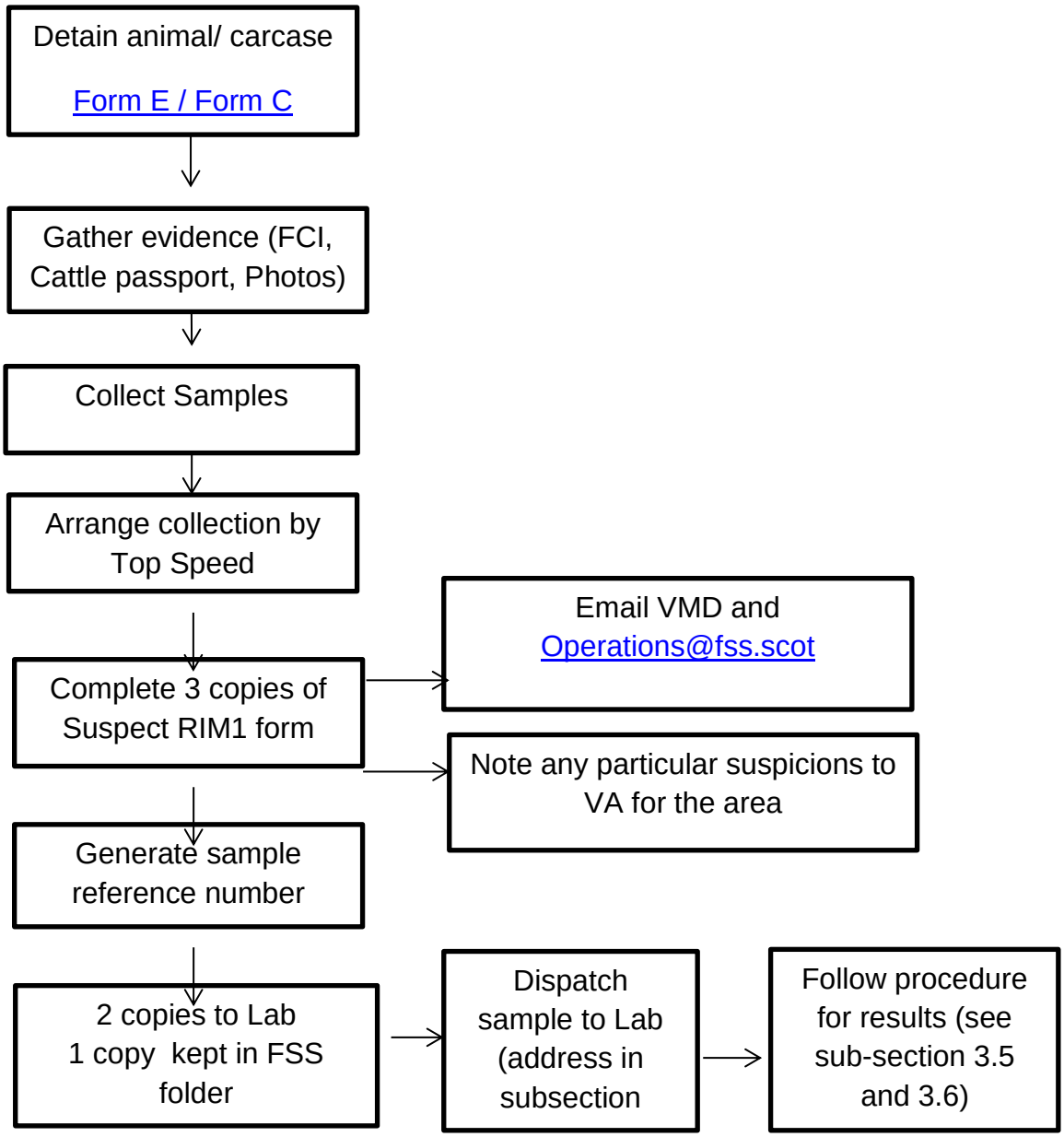
One sample number per sample sent must be generated.

Note: Record the numbers used in the daybook and in OWS module "Sample Requests".

3.4.4 Reporting suspicious cases

When animals or carcases are detained and sampled under the Residues Regulations, an on-farm investigation may be required. As a result, the OV must inform:

- the VMD via email using the following address residues@vmd.gov.uk
- the FSS SLA team via email operations@fss.scot
- The relevant Veterinary Advisor for the area



Note: All samples MUST be collected, prepared and despatched in accordance with the procedures covered previously in this chapter, apart from freezing time: a suspect sample should be sent on the day of the collection.

3.4.5 Samples required

A list of the types of analyses and the samples required is given in the following table. For advice on the type of sample to collect for authorised substances not listed, you should contact the VMD Veterinary Advisor.

Example: For antimicrobial or sulphonamide analysis, a kidney sample should be collected.

Samples from carcases		
Analyses	**Species**	**Sample Type**
Antimicrobials	Cattle, sheep, pigs, horses, deer	Kidney
Antimicrobials	Poultry	Muscle
Table 2**	Cattle, sheep, pigs, deer, horses	Kidney
Table 2**	Pheasant, partridge, poultry, deer	Muscle
Sulphonamides	Cattle, sheep, pigs, horses	Kidney
Sulphonamides	Poultry	Muscle
Quinolones/ fluoroquinolones	Poultry	Muscle
Tetracyclines	Poultry	Muscle
Thiamphenicol	Poultry	Muscle
Altrenogest	Pigs	Kidney fat
Metals	Cattle, sheep, pigs, horses	Kidney
Metals	Poultry	Liver
Metals	Pheasant, partridge, deer	Muscle
Anti-endoparasitic substances	Cattle, sheep, pigs, poultry, deer	Liver
Nicarbazin, lasalocid and ionophores	Poultry, deer, Cattle, sheep	Liver
Sedatives / beta-blockers	Cattle, sheep, pigs, horses	Liver
NSAIDS	Cattle, sheep, pigs, horses	Kidney
NSAIDS	Poultry	Liver
Paracetamol	Poultry	Liver
Pyrethroids	Cattle, sheep, pigs, poultry, deer	Liver
Carbamates	Poultry, deer	Liver
Beta-agonists	Cattle, sheep, pigs, poultry, deer	Liver
Synthetic hormones	Cattle, sheep, pigs	Urine
Synthetic hormones	Poultry	Liver

Samples from carcases- continuation		
Analyses	**Species**	**Sample Type**
Thyrostats	Cattle, sheep, pigs	Urine
Thyrostats	Poultry	Liver
OCs, PCBs and OPs	Cattle, sheep, pigs	Kidney fat
OCs, PCBs and OPs	Poultry, deer	Liver
Dexamethazone/ β-methazone	Pigs	Liver
Carbadox	Pigs	Kidney
Gestagens	Cattle, sheep, pigs	Kidney fat
Natural hormones	Cattle	Serum
Natural hormones	Poultry	Liver
Methyl-testosterone	Pigs, sheep	Urine
Nortestosterone	Cattle, sheep, pigs	Urine
Synthetic hormones	Cattle, sheep, pigs	Urine
Zeranol	Cattle, sheep, pigs	Urine
Nortestosterone	Cattle, sheep, pigs	Urine
Natural hormones	Cattle, sheep, pigs	Serum
Thyrostats	Cattle, sheep, pigs	Urine
Beta-agonists	Cattle, sheep, pigs	Urine
Gestagenic substances	Cattle, sheep, pigs	Urine

3.5 Results: live animals

3.5.1 Notification of results

The VMD will inform the OV by telephone of the results or via email as soon as they are available, followed by written confirmation via email to the OV and cc Operations@fss.scot . The OV should then inform their VA.

3.5.2 Compliant results

In the event of compliant results, the OV must serve a Form H notice, cancelling Form G.

Reference: See Annex 12 for a sample **Form H** notice.

3.5.3 Non-compliant results

In the event of non-compliant results, further action depends on the type of substance found; the VMD will issue specific instructions for each case.

3.5.4 Prohibited substances found

If prohibited substances are found the VMD will request that the OV serve a **Form I** notice on the owner or person in charge of the animal(s). This notice gives conditions and the time within which the animal(s) must be disposed of as a Category 1 Animal-By-Product.

Reference: See Annex 13 for a sample **Form I** notice.

3.5.5 Failure to comply

If the owner or person in charge of the animal(s) fails to comply with **Form I** you should serve a **Form J** notice and make arrangements for the disposal of the animal(s). The costs of such action will be recovered from the owner or person in charge of the animals.

Reference: See Annex 14 for a sample **Form J** notice.

3.5.6 Investigation

The detection of residues of unauthorised substances will be immediately investigated APHA on farm and SFCIU and Operations at abattoir level.

3.6 Results: Suspect carcases

3.6.1 Results

See sub-section 3.5.1 Notification of results.

3.6.2 OV action on receipt of non-compliant results

If the results are positive, the OV who was responsible for sending the sample(s) will be sent **Form A** and **Form B** and a copy of the original RIM 1 form by the laboratory.

Reference: See Annex 5 on '**Form A'** and Annex 6 on '**Form B'** for samples. The OV is to:

- issue the forms to the owner or person in charge of the carcase
- declare the meat unfit for human consumption
- request voluntary surrender of the carcase

If the FBO refuses to surrender the carcase, you must put in writing the reason why the meat is being formally declared as unfit for human consumption in accordance with The Official Controls (Animals, Feed and Food, Plant Health Fees etc.) Regulations 2019 SI 2019/1488 and Regulation (EU) 2019/627, Article 45(f).

Note: Where the FBO continues to refuse to dispose of meat that has been declared unfit, follow the ABP provisions relating to the treatment of meat declared unfit for human consumption in chapter 2.8 on 'Animal by-products'.

Reference: See chapter 7 on 'Enforcement' and Regulation (EU) 2019/627, Article 43(i), for additional information.

Note: If the result is non-compliant (for an authorised substance above legal limits, or a presence of unauthorised substance), the OV will be contacted by the VMD and given further specific instructions.

The limits can be found in the Commission Regulation (EU) No 37/2010 and Maximum Residue Limits in Great Britain.

Commission Regulation (EU) No 37/2010 of 22 December 2009 on pharmacologically active substances and their classification regarding maximum residue limits in foodstuffs of animal origin (Text with EEA relevance) (legislation.gov.uk)

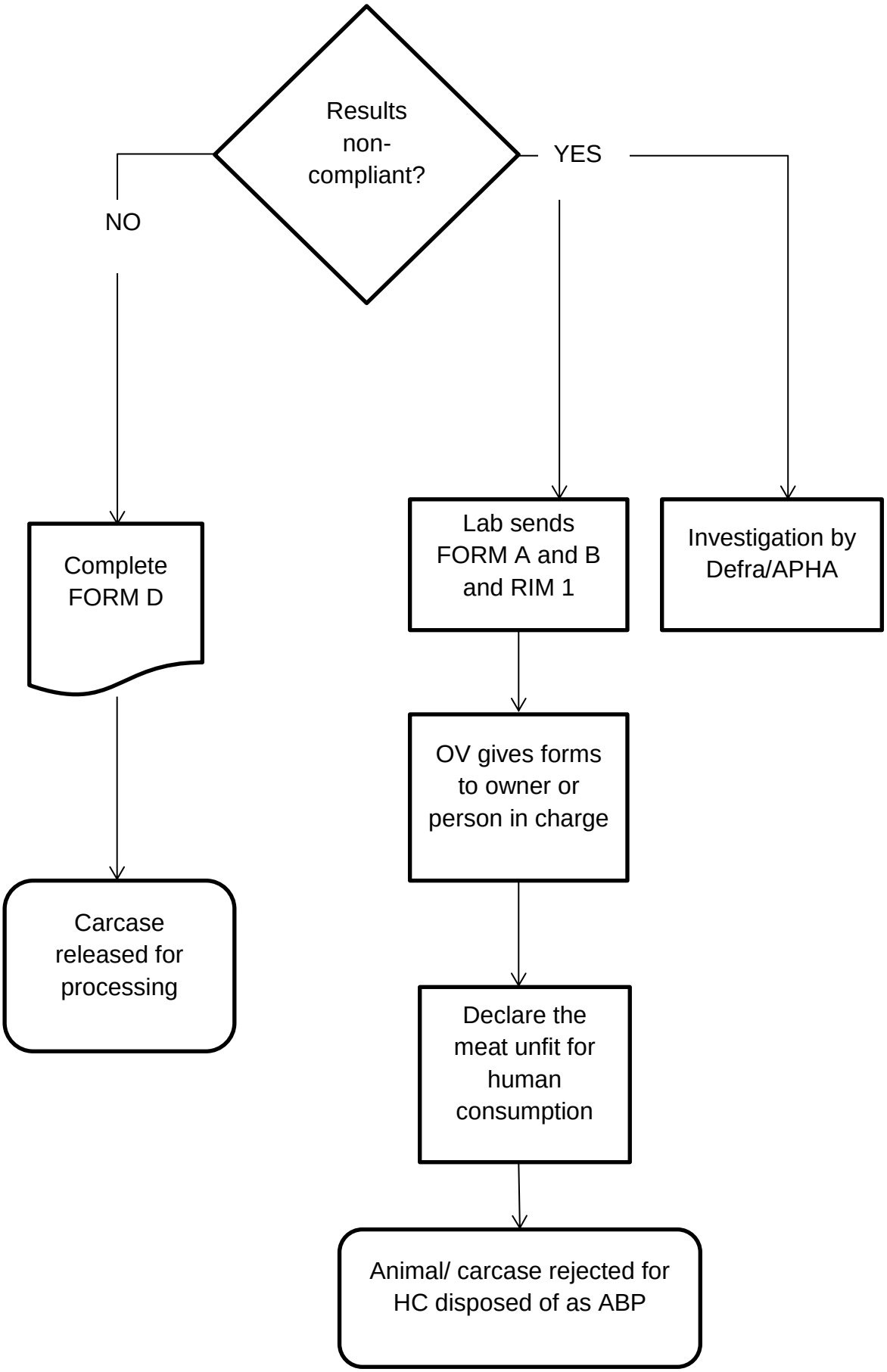
3.6.3 Compliant results

If the result is compliant, complete **Form D** and release the carcase for processing.

Reference: See Annex 8 for a sample **Form D**.

3.6.4 Follow-up investigation

A follow-up investigation will be carried out by APHA on farm and SFCIU and Operations at abattoir level.


Results non-compliant?
YES
NO
Complete FORM D
Lab sends FORM A and B and RIM 1
Investigation by Defra/APHA
OV gives forms to owner or person in charge
Carcase released for processing
Declare the meat unfit for human consumption
Animal/ carcase rejected for HC disposed of as ABP

4. Farm Incidents with lead contamination

4.1 Lead Poisoning

Lead is a highly toxic metal causing nervous disease, blindness, infertility and death, mainly affecting cattle & sheep.

Contaminated meat, offal and milk containing lead at levels above legal limits is unsafe and illegal to be placed on the market.

Reference: Farmers urged to act now to prevent lead poisoning in cattle

On Farm Incidents. How to Protect Your Livestock and Scotland's Food Chain

4.2 Blood Lead Levels

- < 0.15 µmol/l: no restrictions required.
- 0.15 µmol/l to 0.48 µmol/l: farmer to provide food chain information (FCI) to the abattoir including a request to ensure offal is discarded. FCI should include a copy of the most recent lab report and reference the FSS incident number (e.g. 043-2019).
- 0.48 to 1.00 µmol/l: If the animal is still to be slaughtered, farmer to provide food chain information (FCI) to the abattoir, including a request to ensure offal is discarded. The farmer can request advice from FSS prior to the animal(s) being sent for slaughter.
- >1.00 µmol/l: Ideally a further withdrawal period should be observed by the farmer. If the animal is still to be slaughtered, the farmer will provide food chain information (FCI) to the abattoir, including a request to ensure offal is discarded. Carcase meat will require testing for lead residues prior to carcase release (this should be pre-arranged between the farmer and the FBO).

4.3 Producer requirements

Animals' owner must provide to the abattoir, in addition to the routine food chain information (FCI), a copy of the most recent laboratory blood results showing the eartag number of the animal, date sampled and relevant blood level. Additionally, farmers will be asked to reference the CLIO incident number with their FCI.

If there are any issues with the accompanying documentation or any clarification of lab results is required, please contact the incidents team on 01224 288358, or incidents@fss.scot.

Part 2 Antimicrobial Resistance (AMR) Monitoring Programme

1. Overview

1.1 Introduction

1.1.1 Survey overview

The Veterinary Medicines Directorate (VMD) oversees the monitoring programme of antimicrobial resistance (AMR) in commensal *E. coli* and *Salmonella* isolates from fattening pigs at slaughter, and in commensal *E. coli* and *Campylobacter spp*. from broilers and fattening turkeys at slaughter.

1.1.2 Co-ordination and collection

VMD is responsible for the co-ordination and management of this GB monitoring project.

The AMR surveillance programme is funded by the VMD, and managed by the Antimicrobial Resistance Team:

Email: a.pickering@vmd.gov.uk; amr@vmd.gov.uk

The contractors for the monitoring programme are the Animal and Plant Health Agency (APHA). APHA will be responsible for the testing of samples submitted and determining the total number of samples required from selected abattoirs. APHA will send sampling schedules and kits to participating establishments.

FSS OVs will undertake the collection of samples from approved slaughterhouses participating in the monitoring programme.

The survey requires the collection of samples from a number of different slaughtered batches/ producers for each species.

Samples will be collected on the following annual basis:

Species	Year
Broiler/Turkeys	even years
Pigs	odd years

1.2 FSS role

1.2.1 Target population

Broilers, fattening turkeys and fattening pigs.

1.2.2 OV requirements

The OV must:

- ensure continuity of evidence when samples are collected, prepared, labelled, stored and despatched, and
- always obtain evidence for the origin of the samples collected
- ensure the data collection forms, AMR1 (for Turkeys), AMR2 (for Pigs) and AMR3 (for Broilers) are fully completed, and two copies are taken (see Annexes 16, 17 and 18 for examples of the forms)
- ensure one copy of the AMR form is sent with the samples, while the other copy is retained for 5 years.

1.2.3 Relevant establishments

These instructions apply to FSS staff at plants participating in the *Campylobacter* in broilers and turkeys, *E. coli* in broilers, turkeys and pigs and *Salmonella* in pigs surveillance programme.

1.2.4 Time coding

All work undertaken as part of this survey in the collection, storage, packaging and despatch of samples is to be coded in the FSS OWS system.

2. Sampling

2.1 Sampling programme

2.1.1 Sampling requests

FSS OVs in plants will receive a sampling schedule prepared by APHA, from the SLA Team, which will list the number of batches that need to be sampled during the sampling period (the schedule will be sent in advance either monthly or quarterly, as appropriate).

The schedule will provide details on the date of sampling, the number of batches that need to be sampled on a given day and the ID of the batch to sample.

Please note that as the sampling schedule is weighted according to plant throughput, larger processing plants will sample more regularly than smaller processing plants.

Note: The ID batch number refers to:

- the sequence of slaughter batches going through the abattoir on the day of sampling (for broilers and turkeys)
- the sequence of slaughtered animals (for pigs)

For example, ID batch 2 would be the second batch of turkeys slaughtered on the given sampling day or the second pig killed on the slaughter line on the given sampling day.

2.1.2 Monitoring definitions

A ‘slaughter batch’ is defined as a quantity of broilers/turkeys which have been raised on the same farm premises, in the same house, and delivered to the abattoir in the same vehicle.

Pig Kill Number is the actual pig kill number of the sampled pig at the start of the slaughter line on that particular day of sampling.

2.1.3 Exclusion criteria

Slaughter batches/ loads from more than one house or from more than one farm (mixed batches) are to be excluded from the monitoring programme.

2.1.4 Selection of slaughter batches

To avoid bias, slaughter batches must be randomly selected for sampling.

When collecting broiler or turkey samples, beside each allocated sampling day on the schedule there are three numbers per sampling batch labelled 'ID of batch to sample', 'ID batch (1st reserve)' and 'ID batch (2nd reserve)'. These are random numbers generated using the average number of batches processed during the abattoir's working day and represent the particular batch that must be identified and sampled.

Batches of broilers or turkeys from mixed houses, or from more than one farm, must be excluded. Therefore, if the selected batch is from a mixed house or from more than one farm, then the reserve batch should be sampled if that is not a mixed batch. The ID of the batch sampled should be marked clearly on the data collection form, AMR1 or AMR3. Example:

Allocated sampling days	ID of batch to sample	ID batch (1st reserve)	ID batch (2nd reserve)
08/11/12	5	7	15
13/11/12	2	6	24
13/11/12	3	9	17
05/12/12	7	2	5

When collecting pig samples, if the selected animal on the schedule is from a mixed batch/ load or from more than one farm, select a pig from a single producer and sample. The ID (kill number) of the pig sampled should be marked clearly on the data collection form AMR2.

When preparing to take a sample, please ensure the 'previously sampled report from APHA is reviewed to prevent repeated sampling of the same flocks or holdings

Sampling for the surveillance programme will only be carried out Monday to Friday. If you do not slaughter broilers, turkeys or pigs on the specified sampling day, please sample the same ID batch number allocated but on the next processing day.

The revised sampling date and the ID of the batch sampled should be marked clearly on the data collection forms, AMR1, AMR2 or AMR3.

Reference: See Annex 16 for a sample copy of form AMR1, Annex 17 for a sample copy of form AMR2 and Annex 18 for a sample copy of form AMR3.

Note: If you cannot despatch the samples on the same day as collection, or if you have any questions on the sampling schedule, contact the SLA Team.

2.1.5 Selection process

The following table outlines the slaughter batch selection process:

Step	Description
1	If the batch identified for sampling is not eligible (it is not from a single house or cannot be sampled, sample the 1st reserve batch for broilers and turkeys or select a suitable animal to sample from for pigs.
2	If the 1st reserve batch is not eligible or cannot be sampled, sample the 2nd reserve batch (**Note**: for broiler or turkey sampling only).
3	If the 2nd reserve batch is not eligible or cannot be sampled, sample the next available eligible batch on the same processing day (**Note**: for broilers or turkeys only).
4	Mark the sampled ID batch number on the AMR1, AMR2 or AMR3 form
5	If there are no more eligible batches processed on the same day, **sample the first available eligible batch on the next processing day** (and mark the date and batch number clearly on the AMR1, AMR2 or AMR3 form).

2.2 Sampling equipment

2.2.1 Introduction

APHA will provide the relevant establishments with sampling kits and the data collection forms (AMR1, AMR2 or AMR3). The SLA Team will contact FSS staff at the establishments to inform them of delivery arrangements for sampling kits.

2.2.2 Non-delivery of sample kits

Sampling kits and forms should be received at least four days before sampling begins. If you do not receive the kit and form, or if any of the equipment listed below is missing, contact the SLA Team.

2.2.3 Sampling kit contents

Broilers and Turkeys kit:

- 1 x Biotherm shipping box
    - Broilers – Biotherm 7
- Turkeys – Biotherm 5 and 73-4 sample pots/ honey jars

    - Broilers – 2 x 300ml screw cap sampling pot
- Turkeys – 300 ml screw cap sampling potA4 Pathoseal absorbent bags for sample pots/ honey jars
- sterile gloves
- grip-seal bags
- AMR1 and AMR3 form
- 2x Biochills (frozen) - these must be kept away from direct contact with the samples using the bubble wrap (for broiler samples) or the polystyrene spacers (for turkey samples)
- bubble wrap (Broilers)
- polystyrene spacer (Turkeys)
- security seal
- UN3373 label

Note: Biochill packs must be completely frozen when packed in the sampling box, ensure that they are placed in a freezer at least 48 hours before sampling.

For turkeys and broilers, the biochills are placed on top of the polystyrene separator (which comes in the biotherm 5 and 7 boxes). See details for packaging in section 2.7.3.

Pigs kit: for sampling 1 caeca per fattening pig:

- 1 x Biotherm shipping box
- 1 x 90 ml screw cap sampling pot
- disposable scalpel
- A4 Pathoseal absorbent bag (with absorbent lining)
- sterile gloves
- grip-seal bags
- AMR2 form
- bubble wrap
- 2x Biochills (frozen)
- security seal
- UN3373 label

Note: Only 2 Biochill packs must be completely frozen when packed in the sampling box, ensuring they are placed at the top of the sampling box. The Biochills must be placed in a freezer at least 48 hours before sampling. Any additional Biochill packs

provided (e.g., during summer months) must be chilled and placed either side of the sample within the box.

2.3 Broilers and Turkeys: Collecting samples

2.3.1 Caeca samples

For Turkeys:

1 pair of full and intact caeca will be sampled at the evisceration point from one bird per slaughter batch. The pair of caeca will be put into the sampling pot.

Turkey sampling is to be carried out at the time of evisceration. Birds are to be sampled at random during the selected batch avoiding the first part of the batch.

Depending on the line speed, and facilities available in each establishment, the paired caeca taken from each bird can be separated from the eviscerated intestines either on the slaughter line, or alternatively the whole offal can be removed and carried in a tray or similar receptacle to a separate area before removing the caeca.

For broilers:

10 pairs of full and intact caeca from 10 birds within the same slaughter batch will be sampled and each pair of caeca put into the appropriate sampling pot.

Sampling is to be carried out at the time of evisceration. Birds are to be sampled at random during the processing of the selected batch but avoiding sampling the first birds slaughtered in the batch. Consecutive birds must not be sampled but a random interval between the 10 birds sampled is the aim. The birds need not be collected from the entire batch; sampling 10 birds at random from approximately 50 or 100 birds slaughtered within the batch is acceptable.

Depending on the line speed, and facilities available in each premise, the paired caeca taken from each bird can be separated from the eviscerated intestines either on the slaughter line, or alternatively the whole offal can be removed and carried in a tray or similar receptacle to a separate area before removing the caeca.

Note for minimising the risk of sampling contamination: It is important that full and intact caeca are collected. This is best achieved by careful manual traction to the portion of intestine either side of the caeca so that both caeca are removed intact with a short length of intestine. The sampler needs to verify that the caeca are intact and full. If they are not, the paired caeca should be disregarded and a new bird selected instead. For turkeys, caeca from different slaughter batches (or carcasses) should not be placed in the same pot. For broilers, ten full and intact caeca can be placed in the same pot (or shared between the two provided pots depending on volume).

The caeca will be put into the appropriate sampling pot. Each sampling pot should then be sealed securely and placed into a small pathoseal absorbent bag (one pot per bag).

2.4 Pigs: Collecting samples

2.4.1 Caeca samples

20g of caecal content will be sampled at the green offal inspection point from one fattening pig. The caeca will be put into a sampling pot.

Pigs sampling is to be carried out at the Green Offal Inspection Point. Pigs are to be sampled from the selected kill number identified at the evisceration point. Depending on the facilities available in each establishment, the caecum taken from each pig can be separated from the eviscerated intestines either at the inspection point on the slaughter line, or alternatively the whole offal can be removed and carried in a tray or similar receptacle to separate area before removing the caecum.

Note for minimising the risk of sampling contamination: For pig samples, this is best achieved by careful piercing of the caecum so that caecal contents can be collected in the sampling pots. Caecal content should be collected per fattening pig and put into a labelled pot. Each pot should then be sealed securely and placed into a small pathoseal absorbent bag.

Caecal content from different fattening pigs should not be placed in the same pot. It is important that 20g of caeca are collected.

2.4.2 Sample handling

Samples must:

- be packaged according to the instructions in this topic
- be despatched, on the same day of collection (where possible)
- arrive at APHA Weybridge within 48 hours of sampling (if the sample is collected on a Thursday or Friday and arrive over the weekend, the samples can be suitably stored and then tested on the Monday, i.e. within 96 hours).

Reference: See sub-section 2.6 on ‘Storage, packaging and despatch of samples’ in part 2 for additional information.

Caution:

- Samples must be kept in a cool dark place until collected by Top Speed.
- Samples must not be frozen.

- Keep box out of direct sunlight.
- Despatch Monday to Friday only.

2.5 Completing the AMR forms

2.5.1 Details to record

The following details must be fully recorded on the AMR1, AMR2 and AMR3 forms:

- abattoir details
- sampling details including the name of the sampler and the date and time of collection
- confirmation of the type of animal slaughtered, for example, fattening turkey or fattening pig

  On the AMR1 and AMR3 form, the following details must also be fully recorded:

- producer details, for example, farm name, address, CPH number
- batch details including the number of birds in the batch slaughtered, the number of birds in the house, the shed/ house number, age of the birds and the average weight of the birds

  On the AMR2 form, the following details must also be fully recorded:

- producer details, for example, farm name, address, CPH number
- animal details including the slap mark number and the weight of the carcase

  Note: If you make an error when recording any of the above data on the AMR form, or anything is unclear that might need going over again, cross through the entry and enter the correct details then initial the change. Any necessary amendments must be made before the copies of the AMR form despatch with the sample.

2.6 Storage, packing and despatch of samples

2.6.1 Chilling

Samples must be kept chilled (not frozen) from the time of sampling until delivery to APHA. Please place the closed sampling kit in a cool area and away from direct heat until the courier arrives. If a cool room is available the entire sampling kit can be stored here until despatch to APHA Weybridge.

Note: Samples must be kept cool by storing them inside the insulated shipping box containing the frozen gel packs.

2.6.2 Specimen collection and handling

Analysis can be affected by the growth of other bacteria. Therefore, care must be taken to ensure that samples are taken appropriately, chilled as described and transported to APHA Weybridge as quickly as possible.

Extreme temperatures must be avoided.

2.6.3 Packing

Packing in line with the following procedures:

Step	Action
1	Ensure that the APHA reference number at the top of the data collection form AMR1 / AMR2 and AMR3 matches the number on the sampling pot.
2	Remove biochills from the freezer (and chiller if additional biochills have been provided). **Broilers:** samples to be placed at the bottom of the biotherm 7 box, then place the polystyrene divider on top with the frozen biochill packs on top of the polystyrene divider. **Turkeys:** samples to be placed at the bottom of the biotherm 5 or 7 box, then place the polystyrene divider on top with the frozen biochill packs on top of the polystyrene divider. **Pigs:** wrap the sample in bubble wrap to avoid contact with frozen biochills. Place the polystyrene divider on top of the sample/s, then place the two frozen biochills on top of this. If additional biochills are provided (i.e. to be chilled, during summer months), place these either side of the sample.
3	Slide the completed form into the plastic document pouch to protect from any leakages that may occur and place into the sampling kit.
4	The sample box must be closed securely without delay. It is important that the pack should not be left open (or closed without freezer packs) for any length of time as this may damage the samples.

Note: All frozen biochill packs provided in the sampling kit should be used. Care must be taken not to place these in direct contact with the specimen pots.

2.6.4 Labelling cardboard outer cartons

Apply the adhesive address label provided by the carrier to the outer carton across the box flaps.

Apply the UN3373 diamond label and Biological substance category B labels to the outer carton.

Apply the security seal to the carton lid.

2.6.5 Despatching samples

Samples are to be despatched to APHA using the Top Speed next day service:

Step	Action
1	Arrange collection by Top Speed using the process at Annex 19
2	Provide Top Speed with the following information: • number of items (boxes) in consignment • kill date and time • name of person making the booking
3	Write the barcode nos. as reference for the collection in the plant day book. Top Speed to collect as arranged

2.6.6 Despatch of all samples

Samples are to be sent to:
Bacteriology
Building 17
APHA
Woodham Lane
New Haw
Addlestone
Surrey
KT15 3NB

2.6.7 Despatch failure

Should despatch fail, you must contact Top Speed and make an attempt to rearrange despatch, and notify APHA Weybridge by email to advise them of the despatch failure: AMRSurvey@apha.gov.uk

2.6.8 Complaints procedure

Should Top Speed fail to collect samples within the agreed timeframe, contact the operations team (using the email address operations@fss.scot) who will escalate the failure to Top Speed headquarters.

Part 3 Annexes