SCHEDULE Regulation 4(8)

"Schedule 17A Regulations 8(1)(e), 20(1)(eB) and 20(5)(a)(i)

COMMUNITY PROCEDURES FOR CONDUCTING MICROBIOLOGICAL CHECKS ON CARCASES

Sampling procedure and number of samples to be taken

(a) Between 5 and 10 carcases should be sampled on a single day during each week. The day of sampling should be changed each week to ensure that every day of the working week is covered. The frequency of sampling the carcases in low throughput slaughterhouses and in slaughterhouses not working on a full-time basis should be determined by the OVS based on the judgement of the OVS on hygiene standards with respect to the slaughter at each plant.

(b) A sample from four sites from each carcase should be taken half way through the slaughter day, after dressing and before chilling commences.

(c) Carcase identification, date and time of sampling should be recorded for each sample and the name of the person performing the sampling.

(d) The frequency of sampling may be reduced to fortnightly testing if satisfactory results are obtained on six consecutive weeks, but weekly sampling must be resumed if unsatisfactory results are obtained.

Sampling sites

(a) The following sites will usually be appropriate for process control:

Cattle: *neck, brisket, flank, and rump*

Sheep, goat: *flank, thorax lateral, brisket, and breast*

Pig: *back, jowl (or cheek), hind limb medial (ham), and belly*

Horse: *flank, brisket, back, and rump*.

(b) However, alternatives sites may be used following consultation with the OVS where it has been demonstrated that, because of the slaughter technology at a particular plant, other sites are more likely to carry higher levels of contamination. In these cases sites shown to carry higher levels of contamination may be chosen.

Excision Sampling Method

3. The following protocol should be followed at the slaughterhouse:

(a) Four tissue samples representing a total of 20 cm^2 should be obtained from each carcase.

(b) Pieces of tissue may be obtained using a sterile cork borer (2.5 cm diameter) or by cutting a slice of 5 cm^2 and maximum thickness of 5 mm off the carcase with a sterile instrument.

(c) Samples from the four sampling sites of each tested carcase may be analysed separately or may be pooled in the same container before examination. Where unacceptable results are obtained from pooled samples and corrective actions do not lead to better hygiene, further samples should not be pooled until problems have been resolved.

(d) The samples must be placed aseptically into a sample container or plastic dilution bag at the slaughterhouse, for transfer to the laboratory.

Method for the examination of samples

4. The following protocol should be followed in the laboratory:

(a) Samples should be stored refrigerated until examination at 4°C. Samples should be examined within 24 hours after sampling.

(b) Samples should be homogenised in a plastic dilution bag for at least two minutes in 100 ml of dilution media (see IS0 6887-1) at about 250 cycles of a peristaltic Stomacher or homogenised by a rotary blender (homogeniser).

(c) Dilution before plating should be carried out in 10-fold steps in the dilution media.

(d) Analysis should be performed for total viable counts and Enterobacteriaceae. ISO-methods should provide the basis for examination of samples.

Records

(a) All test results must be recorded in terms of colony forming units (cfu)/cm^2 of surface area. The daily log mean results for carcases sampled on one day must be calculated and recorded.

(b) Records must include:

(i) type, origin and identification of the sample, date and time of sampling, name of the person that performed the sampling,

(ii) name and address of the laboratory which analysed the sample, date of investigation of samples in the laboratory and details of the method used including inoculation of different agars, incubation temperature, time, and results as number of cfu per plate used to calculate the result in cfu/cm^2 of surface area.

(c) A responsible person from the laboratory should sign the records.

(d) To permit evaluation, results must be shown on process control charts or tables, containing at least the last 13 weekly test results in order.

Verification Criteria

(a) Daily log mean results must be allocated into one of three categories for process control verification: “acceptable”, “marginal”, and “unacceptable” as set out in the table below, where ‘M’ and ‘m’ denote the upper limits for the marginal and acceptable categories, respectively, for samples taken according to the excision method.

(b) The test results should be categorised according to the respective microbiological criteria in the same order as the samples are collected.

(c) As each new test result is obtained, the verification criteria are applied anew to evaluate the status of process control with respect to microbiological contamination and hygiene.

(d) An unacceptable result or unsatisfactory marginal result trends should trigger action to review process controls, discover the cause if possible, and prevent recurrence.

Daily log mean values (cfu/ cm^2)	Acceptable range		Marginal range (>m but •M)	Unacceptable range (> M)
	Cattle/sheep/ goat/horse	Pig:	Cattle/pig/ sheep/goat/ horse	Cattle/pig/ sheep/goat/ horse
Total viable counts (TVC)	< 3.5 log	< 4.0 log	3.5 log (pig: 4.0 log) – 5.0 log	> 5.0 log
Enterobacteriaceae	< 1.5 log	< 2.0 log	1.5 log (pig: 2.0 log) – 2.5 log (pig: 3.0 log)	> 2.5 log (pig > 3.0 log)

Feedback to staff

(a) The results of the test must be fed back to the responsible staff as soon as possible.

(b) The results should be used to maintain and improve the standard of slaughter hygiene. Causes of poor results may be clarified by consultation with the slaughtering staff where the following factors could be involved: poor working procedures, absence or inadequacy of training and/or instructions, the use of unsuitable cleaning and/or disinfection materials and chemicals, inadequate maintenance of cleaning apparatus, and inadequate supervision.

Schedule 17B

Regulations 8(1)(e), 20(1)(eB) and 20(5)(a)(ii)

NATIONAL PROCEDURES FOR CONDUCTING MICROBIOLOGICAL CHECKS ON CARCASES

Sampling procedure and number of samples to be taken

(a) Between 5 and 10 carcases should be sampled on a single day each week. The day of sampling should be changed each week to ensure that every day of the working week is covered. The frequency of testing the carcases in low throughput slaughterhouses and for slaughterhouses not working on a full-time basis should be determined by the OVS based on the judgement of the OVS on hygiene standards with respect to the slaughter at each plant.

(b) A sample from four sites from each carcase should be taken half way through the slaughter day, after dressing and before chilling commences.

(c) Carcase identification, date and time of sampling should be recorded for each sample and the name of the person performing the sampling.

(d) The frequency of sampling may be reduced to fortnightly testing if satisfactory results are obtained on six consecutive weeks, but weekly sampling must be resumed if unsatisfactory results are obtained.

Sampling sites

(a) The following sites will usually be appropriate for process control:

Cattle: *neck, brisket, flank, and rump*

Sheep, goat: *flank, thorax lateral, brisket, and breast*

Pig: *back, jowl (or cheek), hind limb medial (ham), and belly*

Horse: *flank, brisket, back, and rump*.

(b) However, alternative sites may be used, following consultation with the OVS where it has been demonstrated that, because of the slaughter technology at a particular plant, other sites are more likely to carry higher levels of contamination. In these cases sites shown to carry higher levels of contamination may be chosen.

Wet & Dry Swabbing Method

3. The following protocol should be followed at the slaughterhouse:

(a) Where swabs are moistened prior to collection of samples, a sterile peptone salt diluent (see ISO 6887-1) should be used.

(b) The sampling area for swabbing should cover 100cm^2 per sampling site. However, a smaller area may be tested, subject to the approval of the OVS on the basis of historical data.

(c) The swab should be moistened for at least 5 seconds in the diluent and rubbed initially vertically, then horizontally, then diagonally for not less than 20 seconds across the swab site. As much pressure as possible should be used. After using the wet swab, the same sampling technique should be repeated by a dry swab.

(d) Samples from the four sampling sites of each tested carcase may be analysed separately or may be pooled in the same container before examination. Where unacceptable results are obtained with pooled samples and corrective actions do not lead to better hygiene, further samples should not be pooled until problems have been resolved.

(e) The samples must be placed aseptically into a sample container or plastic dilution bag at the slaughterhouse for transfer to the laboratory.

Method for the examination of samples

4. The following protocol should be followed in the laboratory:

(a) Samples should be stored refrigerated until examination at 4°C. Samples should be examined within 24 hours after sampling.

(b) Samples should be homogenised in a plastic dilution bag for at least two minutes in 100 ml of dilution media (see ISO 6887-1) at about 250 cycles of a peristaltic Stomacher or homogenised by a rotary blender (homogeniser). Alternatively swab samples may be shaken vigorously in the dilution media.

(c) Dilution before plating should be carried out in 10-fold steps in the dilution media.

(d) Analysis should be performed for total viable counts and Enterobacteriaceae. ISO-methods should provide the basis for examination of samples.

Records

(a) All test results must be recorded in terms of colony forming units (cfu) per cm^2 of surface area. The daily log mean results for the carcases sampled on one day must be calculated and recorded.

(b) Records must include:

(i) origin, type and identification of the sample, date and hour of sampling, name of the person that performed the sampling.

(ii) name and address of the laboratory which analysed the sample, date of investigation of samples in the laboratory and details of the method used including inoculation of different agars, incubation temperature, time, and results as number of cfu per plate used to calculate the result in (cfu) per cm^2 of surface area.

(c) A responsible person from the laboratory should sign the records.

(d) To permit evaluation, results must be shown on process control charts or tables, containing at least the last 13 weekly test results in order.

Verification Criteria

(a) Daily log mean results must be allocated into one of three categories for process control verification: "acceptable", "marginal", and "unacceptable" as set out in the table below, where 'M' and 'm' denote the upper limits for the marginal and acceptable categories, respectively, for samples taken according to the wet and dry swabbing method.

(b) The test results should be categorised according to the respective microbiological criteria in the same order as the samples are collected.

(c) As each new test result is obtained, the verification criteria are applied anew to evaluate the status of process control with respect to microbiological contamination and hygiene.

(d) An unacceptable result or unsatisfactory marginal result trends should trigger action to review process controls, discover the cause if possible, and prevent recurrence.

Daily log mean values (cfu/ cm^2)	Acceptable range		Marginal range (>m but •M)	Unacceptable range (> M)
	Cattle/sheep/ goat/horse	Pig:	Cattle/pig/ sheep/goat/ horse	Cattle/pig/ sheep/goat/ horse
Total viable counts (TVC)	< 2.8 log	< 3.3 log	2.8 log (pig: 3.3 log) – 4.3 log	> 4.3 log
Enterobacteriaceae	< 0.8 log	< 1.3 log	0.8 log (pig: 1.3 log) – 1.8 log (pig: 2.3 log)	> 1.8 log (pig > 2.3 log)

Feedback to staff

(a) The results of the test must be fed back to the responsible staff as soon as possible.

(b) The results should be used to maintain and improve the standard of slaughter hygiene. Causes of poor results may be clarified by consultation with the slaughtering staff where the following factors could be involved: poor working procedures, absence or inadequacy of training and/or instructions, the use of unsuitable cleaning and/or disinfection materials and chemicals, inadequate maintenance of cleaning apparatus, and inadequate supervision.

Schedule 17C

Regulations 8(1)(e), 20(1)(eB) and 20(5)(b) and (6)

COMMUNITY PROCEDURES FOR CONDUCTING MICROBIOLOGICAL CHECKS IN RELATION TO CLEANING AND DISINFECTION OF PREMISES

1. Microbiological sampling must take place before production starts, never during production. If visible dirt is present cleaning should be judged as unacceptable without any further microbiological evaluation.

Sampling Sites

(a) To ensure that all surfaces are tested in the course of a month a schedule should be made indicating which surfaces should be sampled on which days.

(b) Surfaces to be tested must be cleaned and disinfected, dry, flat, sufficiently large and smooth.

(c) Three samples should be taken from large objects. Places which should receive most attention are the areas which may come into contact with the product. Approximately two thirds of the total number of samples should be taken from food contact surfaces.

(d) The following points should, for example, be chosen as sampling sites: knives (junction of blade and handle), hollow blood draining knives, elastrators, bung bagging machines, scraping/gambrelling table (pig), sawblades and cutters, cattle dehiding, other carcase dressing instruments, polishing machine, shackles and containers for transport, transport conveyor belts, aprons, cutting tables, flap doors, chutes for food organs, etc.

Frequency

(a) A minimum of 10 samples (or up to 30 samples in a large production area) should be carried out within a period of two weeks.

(b) If the results are satisfactory over a period of time the frequency of sampling may be reduced following the agreement of the OVS, but fortnightly sampling must be resumed if unsatisfactory results are obtained.

Sampling Method

4. Either the Agar contact plate method or the swab technique may be used. In addition to the given descriptions, ISO methods may be used.

(a) Agar Contact Plate Method

(i) Small plastic dishes with lids (i.e. internal diameter 5 cm) filled with plate count agar (according to ISO, latest version) and dishes filled with violet red bile glucose agar (VRBG agar according to ISO, latest version) are pressed on to each sampling site and subsequently incubated. The contact surface of each plate is 20 cm^2.

(ii) Shortly before preparation of the plates, the relevant agar has to be melted to 100°C and cooled to 46 to 48°C. The plates have to be placed in a laminar air flow cabin and should be filled with agar until a convex surface is obtained. The prepared plates should be dried before use by incubating them upside down overnight at 37°C. This is also a useful check for possible contamination during preparation; plates with visible colonies must be discarded. After preparation the agar has a shelf life of approximately three months when kept at 2 to 4°C in closed bottles.

(iii) The used contact plates do not need to be cooled during transport and before incubation. The plates have a shelf life of one week at 2 to 4°C, when sealed into plastic bags.

(b) Swab Technique

(i) Samples should be collected with cotton swabs moistened with 1 ml of 0.1% NaCI peptone solution (8,5 g NaCI, 1 g trypton casein-pepton, 0.1% agar, and 1000 ml distilled water) from a surface area of preferably 20 cm^2.

(ii) If sampling is performed following cleaning and disinfection an amount of 30 g/litre Tween 80 and 3 g/litre Lecithin (or other products with a similar effect) should be added to the moistening solution for swabs.

(iii) The sampled surface must be swabbed 10 times from top to bottom applying a firm pressure on the surface.

(iv) Swabs should be collected in a bottle containing 40 ml buffered peptone with 0.1% agar saline solution, then cooled and stored at 4°C until further processing.

(v) The bottle should be shaken vigorously before diluting in 10-fold steps in 40 ml 0.1% NaCI peptone solution followed by microbiological examination (e.g. drop-plating technique).

Method for the examination of samples

(a) Analysis must be performed for total viable counts (TVC). Inoculated plate count agar plates and agar contact plates must be incubated for 24 hours at 37°C ± 1°C under aerobic conditions for total colony count (TVC). This procedure should take place within two hours of sampling. The number of bacterial colonies should be counted and recorded.

(b) Analysis for Enterobacteriaceae is voluntary unless required by the official veterinary surgeon. For quantitative estimation of Enterobacteriaceae VRBG agar must be used. Incubation of inoculated plates and agar contact plates should begin within two hours of sampling. After 24 hours incubation at 37°C ± 1°C under aerobic conditions, the plates must be examined for Enterobacteriaceae growth.

Records and Results

(a) The bacterial counts must be reported according to the number of organisms per cm^2 of surface area.

(b) Records must include:

(i) identification of the sample, date and time of sampling, name of the person that performed the sampling,

(ii) name and address of the laboratory which analysed the sample, date of investigation of samples in the laboratory, details of the method used and results.

(c) A responsible person from the laboratory should sign the records.

(d) Results have to be entered on a registration form and allocated into one of two categories established for the purpose of process control verification of cleaning and disinfection: “acceptable” and “unacceptable”. The acceptable range for the number of colonies of TVC or Enterobacteriaceae are shown in the table below.

Values for the number of colonies for testing of surfaces

	Acceptable range	Unacceptable range
Total viable counts (TVC)	0 – 10/ cm^2	> 10/ cm^2
Enterobacteriaceae	0 – 1/ cm^2	> 1/ cm^2

Feedback to staff

(a) The results of the test have to be reported to the responsible staff as soon as possible.

(b) The results should be used to maintain and improve the standard of cleaning and disinfection. Causes of unsatisfactory results should be clarified by consultation with the cleaning staff. The following factors may be involved: absence or inadequacy of training and/or instructions, the use of unsuitable cleaning and/or disinfection materials and chemicals, inadequate maintenance of cleaning apparatus, and inadequate supervision.”.