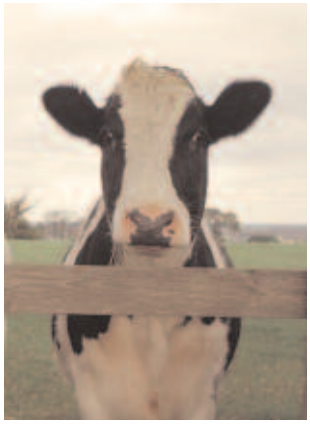
BSE - Occupational guidance

Advisory Committee on Dangerous Pathogens



This guidance was prepared by the Advisory Committee on Dangerous Pathogens (ACDP), in conjunction with the Health and Safety Executive (HSE), the Department for Environment, Food and Rural Affairs (Defra), the Food Standards Agency (FSA), the Rural Payments Agency (RPA), the Department of Health (DH), the Meat and Livestock Commission and Meat Hygiene Service, employee and employer representatives and the Transmissible Spongiform Encephalopathy Working Group (TSE WG) of the ACDP, and the Devolved Administrations.

This guidance represents what is considered to be good practice by members of the ACDP. Following the guidance is not compulsory and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance as illustrating good practice.

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Foreword

The first case of Bovine Spongiform Encephalopathy (BSE) was diagnosed in the UK in 1986. In the years following this first case the application of a number of control measures led to a sustained decline in UK cases of this disease in cattle. Scientific advancements have led to a greater understanding of the infectious agent that is now known to cause BSE, and testing and diagnostic tools have been developed to improve surveillance and testing regimes.

While the UK rates have fallen, a small number of positive animals are still detected in the UK herd. The ACDP decided to revise the existing BSE occupational guidance (originally published in 1996, supplemented in 1998) to ensure the guidance was up to date with scientific developments in the field. The evidence base for the recommendations in this guidance is explored in the ACDP publication *Transmissible spongiform encephalopathy agents: Safe working and the prevention of infection*[1] (see: www.advisorybodies.doh.gov.uk/acdp/tseguidance/index.htm).

This new guidance is based on the most up-to-date knowledge and if followed it is considered that workers will have a negligible risk of being exposed to BSE infection. The guidance aims to provide information about BSE to those whose job could expose them to potentially BSE-infected material, and re-emphasises the importance of using precautionary protective measures to control the risk from BSE infection.

People responsible for health and safety in their workplace where there is contact with material that may be contaminated with the BSE agent will find this guidance helpful in developing local codes of practice for the safe conduct of work. In addition, this guidance also contains references to other documents which will provide more detailed information on particular work activities.

Readers are reminded that this is a guide, and new findings not covered by the guidance should always be taken into account when conducting risk assessments. The guidance has been published electronically to permit easy updating of the information. It is recommended that you return to the website on a regular basis to ensure you are using the most up-to-date version of the guidance.

Advisory Committee on Dangerous Pathogens
2006

Terms of reference

The Advisory Committee on Dangerous Pathogens (ACDP) consists of experts in various branches of microbiology and infectious diseases, and representatives of employees and employers. The chairman of the Committee is an independent scientist.

The terms of reference of the ACDP are:

'to advise the Health and Safety Commission, the Health and Safety Executive and Health and Agriculture Ministers, as required, on all aspects of hazards and risks to workers and others from exposure to pathogens.'

Introduction

About Bovine Spongiform Encephalopathy (BSE)

1 BSE is a fatal, degenerative disease of the central nervous system (CNS) that occurs in cattle. BSE was first described in the UK in 1986. It is one of a number of similar diseases known as transmissible spongiform encephalopathies or TSEs, which occur in humans and various animals.

2 The other well-known TSE seen in sheep and goats is called (classical) **scrapie**.

3 In humans TSEs are rare – the incidence is about 1-2 cases per million people per year of all human TSEs. The commonest form of human TSE is known as Creutzfeldt-Jakob disease (CJD). CJD is not a new disease among humans – cases of sporadic CJD (sCJD) have been known to the medical profession since the 1920s. However, in 1996 a new form of CJD known as variant CJD (vCJD) was formally identified. This form of CJD is more common in young adults and its signs and symptoms differ from sCJD.

4 There is compelling scientific evidence that BSE and vCJD are caused by the same infectious agent. This would suggest that BSE in cattle is the source of the human disease. The agent of BSE is therefore considered to be a biological agent (human pathogen or infectious agent) within the meaning of the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended)[2] and its Approved Code of Practice[3] (see: www.hsebooks.com/Books/Default.asp?cookie%5Ftest=1). Further general information on TSEs can be found in the ACDP guidance *Transmissible spongiform encephalopathy agents: Safe working and the prevention of infection*[1] (see: www.advisorybodies.doh.gov.uk/acdp/tseguidance/index.htm).

The cause of BSE

What is responsible for causing BSE?

5 All TSEs are caused by unusual agents thought to be infectious proteins; these are called prions. Prions do not share the normal properties of other infectious agents such as bacteria or viruses. Prions are proteins that undergo a structural change as part of the disease process, which as well as making them infectious, also makes them very difficult to destroy. We still do not know how or why normal proteins change to become prions.

How were cattle exposed to these prions?

6 Cattle were given a dietary supplement called meat and bone meal (MBM), which contained the infective agent. Animal by-products (including by-products from cattle and sheep) are rendered to produce MBM and tallow. A number of theories* as to the source of the BSE agent have been proposed. However, whatever the source, it is not disputed that amplification of the disease in the UK cattle herd occurred as a consequence of the recycling of cattle by-products from infected cattle back to cattle through MBM and livestock feed.

* Horn, G *Review of the origin of BSE* (2001) Department for Environment, Food and Rural Affairs (DEFRA) London 66pp

Controls in the UK

How is BSE being controlled in the UK?

7 BSE was first confirmed in cattle in 1986. The Government subsequently introduced, and later strengthened, controls to prevent the spread of infection to cattle via feed and reduce the chance of people eating meat and beef products from potentially infected cattle. These measures were designed to reduce the risk of BSE to an extremely low level. The current controls are detailed below.

The feed ban

8 After an initial feed ban in 1988, additional feed controls were put in place in 1996. Current regulations now prohibit the use of mammalian protein in feed to ruminant animals and the incorporation of mammalian MBM in any farm livestock feed. **This ban is designed to prevent cattle from being exposed to BSE via their feed.**

Restriction on cattle slaughtered for human consumption

9 **Cattle, or any material from cattle, born or reared in the UK before 1 August 1996 are not allowed to enter any feed chain including human food supply. Since November 2005 all other cattle over 30 months old have been permitted to enter the food chain subject to required operational methods at the approved slaughterhouse and a negative BSE test.** A list of approved abattoirs is available at: www.defra.gov.uk/animalh/bse/otm/review/guidance-otm.htm.

10 If infected, the vast majority of cattle will only exhibit signs of BSE infection at four years of age or over: no cases of BSE have been seen in cattle under 30 months old since 1996. It is extremely unlikely that cattle under 30 months old would contain sufficient BSE infectivity to present a risk of transmission to humans or animals.

Specified Risk Material (SRM)

11 SRM consists of the tissues and organs that are most likely to contain the BSE agent if animals are infected. By law, these parts of cattle, sheep and goats must be removed. Throughout the EU (including the UK) bovine SRM comprises:

- the skull excluding the mandible and including the brain and eyes, and spinal cord of animals over 12 months;
- the vertebral column **excluding** the vertebrae of the tail, the spinous and transverse processes of the cervical, thoracic and lumbar vertebrae and the medial sacral crest and wings of the sacrum, but **including** the dorsal root ganglia of animals over 24 months old; and
- the tonsils, the intestines (from the duodenum to the rectum) and the mesentery of cattle of all ages.

12 SRM for sheep and goats comprises the skull including the brain and eyes, and spinal cord of animals over 12 months (or permanent incisor erupted) and the spleen and ileum for all ages.

13 A table giving the full definition of SRM is listed on the Food Standards Agency website at: www.food.gov.uk/bse/what/beef/controls.

14 Further details of the infectivity of various tissues can be found at: www.archive.official-documents.co.uk/document/doh/spongifm/annex-a.htm.

15 The removal of SRM in cattle destined for the food chain further reduces the risk of BSE prions contaminating the human food chain. SRM is stained with blue dye at the slaughterhouse and disposed of separately from other animal waste (see paragraphs 66-68 for information on the disposal of SRM).

16 A list of all the current United Kingdom and European legislation can be found at Defra's website at: www.defra.gov.uk/animalh/bse/legislation/index.html.

BSE in the UK herd

17 While BSE-infected cattle have been found in a number of other countries, more cases of the disease have been diagnosed in the UK than anywhere else in the world. However, the number of cases per year in the UK has been continuously declining since 1992, with the total number of new cases in 2005 falling to its lowest point since record keeping began in 1988 (225 new cases of BSE in cattle in 2005 including 22 cases in Northern Ireland).

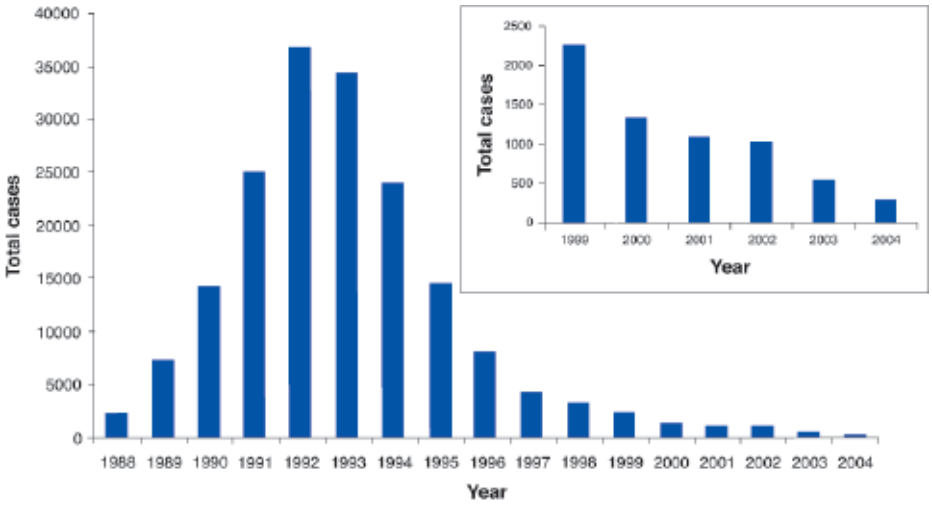

Figure 1 BSE in the United Kingdom – total cases by year

18 There are approximately ten million cattle in the UK. The proportion of UK cattle born after July 1996 projected to be infected with the disease is extremely small. All animals suspected of having BSE are destroyed, and the carcasses are incinerated (or rendered and then incinerated) at approved plants and the ashes disposed of in licensed landfill sites.

Sheep and other animals

19 A number of TSEs affect other species (see Infobox 1) and some of these animals may be susceptible to the BSE agent. There is firm circumstantial evidence that spongiform encephalopathies seen in certain exotic antelopes (eg ankole, eland, gemsbok, bison, cheetah and big cats (eg lion, tiger, ocelot, puma) in zoological collections were caused by exposure to the BSE agent in their feed.

20 Feline Spongiform Encephalopathy (FSE) in domestic cats is also considered to have been caused by exposure to the BSE agent present in cat food.

21 There is a theoretical possibility that some sheep and goats may have become infected with the BSE agent following exposure to the agent in their feed. This is because some sheep and goats consumed livestock feed contaminated with the BSE agent during the height of the BSE epidemic in the late 1980s and early 1990s. It has been demonstrated experimentally that it is possible to infect sheep with the BSE agent by dosing them with infected central nervous tissue given by mouth.

22 If any sheep or goats were infected, the disease may have been passed from sheep to sheep and from goat to goat. Although BSE in cattle does not appear to spread from cow to cow, it could do so in sheep and goats in the same way as scrapie does. BSE, if it occurred in sheep and goats, would be clinically indistinguishable from scrapie. For this reason, risk reduction measures have been applied to sheep and goats and certain specified risk materials are removed and destroyed following slaughter. Further information on the possible risk of BSE in sheep can be obtained from the Food Standards Agency website at: www.food.gov.uk/bse/what/bsesheepbranch/.

23 Scrapie is a notifiable disease; further information on scrapie can be found on Defra's scrapie pages at: www.defra.gov.uk/animalh/bse/othertses/scrapie/index.html. The guidance *Scrapie - Advisory notes for farmers*, specifically on scrapie in sheep, is also available from Defra at: www.defra.gov.uk/animalh/bse/othertses/scrapie/adv-note.pdf.

24 Atypical scrapie has been recently identified, through rapid testing procedures, as a distinct TSE of small ruminants. It is relatively widespread in sheep flocks in Europe, including the UK. There is no evidence, to date, that atypical scrapie can infect humans, although a theoretical risk cannot be excluded. Research is ongoing to understand the human health and animal health and welfare implications of this disease.

25 Chronic Wasting Disease (CWD), a TSE of deer, has not been diagnosed in the UK but suspicion of a TSE in any animal is reportable to Defra.

Transmissible Spongiform Encephalopathies (Prion Disease) in animals

Scrapie (sheep and goats)

Transmissible Mink Encephalopathy

Chronic Wasting Disease of deer, moose and Rocky Mountain elk

Bovine Spongiform Encephalopathy*

Transmissible Spongiform Encephalopathy of captive wild ruminants (nyala, gemsbok, Arabian oryx, eland, greater kudu, scimitar-horned oryx, ankole, bison, zebu)*

Feline Spongiform Encephalopathy (domestic cat, puma, cheetah, ocelot, lion, tiger, Asian golden cat)*

*These diseases all appear to result from infection with the BSE agent.

Infobox 1

Occupational risk

General

26 Variant CJD is thought to be to be the human form of BSE. Because BSE and vCJD are caused by the same agent there may be a risk to those in occupations in which exposure to the BSE agent may occur.

Possible routes of transmission

27 Although there have been no confirmed cases of transmission of BSE to humans as a result of occupational exposure there is a theoretical risk of this occurring. If BSE can be transmitted in the occupational setting this would be most likely to occur via infected SRM in the following ways:

- contaminating wounds and open lesions on the skin;
- contaminating an inoculation injury of intact skin (ie via new cuts from knives, sharp instruments or bone fragments);
- contaminating pre-existing wounds;
- splashing into mucous membranes (eyes and mouth); or
- being swallowed.

Note: See paragraphs 66-68 for more information about SRM.

28 TSEs that occur in humans, like BSE, are not contagious, and they do not pass from person to person. Close contact with a person with CJD has never been shown to result in transmission of the disease.

29 BSE is unlikely to be transmitted by the inhalation of infectious airborne particles; however, it is recommended that appropriate precautions be taken as a safeguard where there is the likelihood of generating droplets and aerosols from infected tissue.

Occupations at risk

30 Those who may be exposed to BSE as a result of their work include:

- Abattoir staff/slaughterhouse workers.
- Farmers.
- Veterinary surgeons.
- Hauliers.
- Knackermen.
- Boning plant operators.
- Renderers.
- Butchers.
- Workers in zoos and circuses.
- Workers handling MBM.
- Incinerator operators.
- Landfill site workers.
- Cleaning and waste disposable workers.
- Maintenance engineers (eg in abattoirs, rendering plants, incinerators).

31 Further information on risks particular to the specific occupations above, or links to advice provided elsewhere, are provided in Appendix 1. There is no evidence that the hides from cattle sent for tanning present any risk.

32 As a result of the declining number of infected cattle, the likelihood of working with an animal or carcass infected with the BSE agent is extremely low. However, it is possible that some UK cattle may be infected, so appropriate precautions need to be put in place to ensure that workers are adequately protected from any potential hazard.

33 There is a greater likelihood of handling a BSE-infected animal if working with older fallen stock (animals which have died from natural causes). The risks in an abattoir slaughtering cattle for human consumption are low and decreasing further over time. However, within this group cattle undergoing emergency slaughter may present a higher risk.

Risk assessment

Introduction

34 Under the Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended) employers must decide if there is any possibility of their employees, contractors, the public etc being exposed to a hazard, in this case infectious agents, as a result of their work. If a hazard is identified, health and safety legislation requires the employer to prevent or adequately control exposure.

35 The Management of Health and Safety at Work Regulations 1999 (the Management Regulations) place duties on employers to ensure appropriate health and safety arrangements are in place in the workplace, including requirements for training, information and surveillance. Further information on the requirements of these Regulations can be found in the Approved Code of Practice L21[4] (see: (www.hsebooks.com/Books/default.asp).

36 For the purpose of this guidance the hazard is BSE infection, and exposure could occur as a consequence of working with live or dead animals or products that could carry BSE infection.

Conducting a risk assessment

37 To assess the risk of exposure to BSE you must consider how your employees (or others) could come into contact with it. The contact could be directly with an infected animal or animal tissue, or tools and structures contaminated with infected tissue.

38 To conduct a risk assessment you will need to consider:

- how often a task is carried out;
- how many people could be exposed; and
- how much infectious material is handled.

39 Other things to consider for your risk assessment include:

- Are you handling live or dead animals, or parts of animals?
- Your duty to consult employees about health and safety matters. You should listen to their views before deciding how to control a hazard, they may identify hazardous situations you are not aware of.
- Identifying everyone who could be affected, not just your employees in direct contact with animals or tissue. You must also consider ancillary staff such as cleaners and exposure of contractors, members of the public etc.

- Animals may appear healthy but could still be carrying BSE infection. You should consider whether their behaviour or background indicates an increased risk.

40 Should you identify the potential for exposure to BSE-infected tissue, you should consider whether your existing controls are sufficient or whether you need to do more to control the risk of exposure.

41 If you employ more than five people, you must write down the significant findings of your assessment, recording the significant hazards identified and the controls in place or to be used. If you have fewer than five employees, you do not need to write anything down but you may find it useful to do so. The risk assessment is a living document and should reflect any changes in the work that you do, new equipment that is used, or a new work activity. It is good practice to regularly review your risk assessment.

42 You also need to tell your employees about the risks that you have identified and the measures in place to control them. They need to know and understand how and when to apply controls. You could provide your employees with this information via their job instructions, local codes of practice, and/or operating procedures.

43 If an employee does catch an infection as result of work, this must be reported to HSE under the Reporting of Injuries, Diseases, and Dangerous Occurrences Regulations 1995 (RIDDOR). See www.riddor.gov.uk/ for information about reporting an incident or accident.

44 The ACDP guidance *Infection at work: controlling the risks*[5] (see: www.hse.gov.uk/biosafety/information.htm) gives general advice on how to conduct a risk assessment, along with a risk assessment form that may help you conduct this task.

45 Further details on how to conduct a risk assessment are also available in this guidance. As a further aid, example risk assessments for specific activities in a variety of occupations have been included in Appendix 2 as a guide for employers.

Identifying the hazards: what are the risks?

46 As part of your risk assessment, you must consider the likelihood of working with animals infected with BSE and how exposure to infected tissue might occur. Other risk factors (such as behaviour and age of the animals) must also be considered when assessing the risk posed from possibly BSE-infected cattle.

Behaviour

47 Due consideration must be given to the behaviour of the cattle prior to slaughter. Infobox 2 lists signs which may reveal a BSE infection.

Age

48 The age of the cattle must also be considered. BSE is rare in cattle under 30 months old and the mean age of occurrence is increasing over time.

49 BSE in cattle is a reportable disease under the TSE regulations. If the behaviour of an animal suggests BSE infection, this must be reported to Defra immediately at: www.defra.gov.uk/animalh/bse/publichealth/notification.html.

Signs of potential BSE infection

- Apprehension.
- Nervousness (flighty).
- Reluctance to cross concrete gulleys, pass through doorways, enter buildings, climb steps, or permit milking.
- (Occasionally) aggressive to other cattle and humans.
- Manic kicking when milked.
- Head shy, with head held low.
- Excessive nose licking.
- High stepping, particularly on hind legs.
- Difficulty in rising ('downer cows').
- Tremors under the skin.
- Loss of condition, weight or milk yield.

Infobox 2

Work with live animals/animal husbandry

50 Because of the nature of the disease, BSE-infected animals may present a physical risk to handlers as their behaviour will change. There is no evidence of transmission of BSE from live cattle to humans in normal animal husbandry practices including veterinary procedures. Nevertheless, good hygiene practices (see Table 1) should always be observed when in contact with all farm stock in case of other infections occurring (such as cryptosporidiosis, salmonellosis and leptospirosis). Gloves should be worn for all examinations and all potentially contaminated equipment, such as hypodermic needles, should be disposed of safely.

51 BSE transmission from a mother to her calf, if it occurs at all, is now likely to be exceedingly rare but cannot be completely ruled out. If it does occur, it is most likely to happen when a mother is already showing signs of BSE. The calf, if it were infected, would not show clinical signs of disease for several years.

52 Further information on the handling of calves from infected mothers can be found in Appendix 1.

53 These precautions apply equally to other species that may succumb to BSE including exotic animals in zoos and circuses, for example, cats and antelopes (see Appendix 1).

Slaughter

54 The slaughter of cattle is strictly controlled and certain procedures should be followed depending on the reason for slaughter and the age of the animal.

55 The most important SRM to consider for potential exposure are the brain and spinal cord. Other tissues may present a BSE hazard, and further details on the infectivity of particular tissues are available in Appendix 2 of the TSE Guidance (see: www.advisorybodies.doh.gov.uk/acdp/tseguidance/annexa2_amended.pdf). The method of slaughter to be used should generate the least risk of contamination of individuals, or the environment, with potentially infected SRM.

56 For on-farm slaughter, the method posing the least risk is likely to be lethal injection as this is minimally invasive and poses little risk of release of SRM.

However, there are certain situations where this method may be impracticable or not allowed within current legislation.

57 In practice, cattle are usually stunned using a captive bolt stunner, and these stunners should be handled with care to prevent inadvertent contamination with SRM material. PPE, including gloves, should be worn and arrangements made to protect the operator from splashing (for example, by use of a visor or a fixed screen). Stunning equipment should be properly cleaned at the end of the working day, while wearing appropriate PPE. Any cloths or material used to clean this equipment must be disposed of and subsequently treated as SRM and stained appropriately.

58 Plant operators also use electrical stunning or a non-penetrative concussive stunner. This type of equipment prevents or reduces the release of brain tissue and lessens the risk of contamination of personnel and the work environment. However, the use of concussive stunners in old cows and mature bulls cannot be recommended because satisfactory stunning is not always achieved.

59 As a requirement of the Older Cattle Disposal Scheme (OCDS) a bung should be inserted into the hole in the skull created by the captive bolt. The bung should be tight fitting to eliminate the risk of liquid leaking from the head during the following dressing operation. The most common type of bung available is manufactured from plastic and this is often 'hammered' into position to provide an efficient leak proof seal. Because the bung has to be a tight fit it should remain with the head when it is dispatched for disposal or veterinary investigation. If, for any reason, a second stun has been applied both holes should be fitted with bungs.

60 As a result of newly introduced legislation in the UK in 2006, bovine head meat may now be harvested for human consumption. This legislation is prescriptive and requires that bungs be used for the bolt-hole and the foramen magnum to prevent cross-contamination of meat intended for human consumption during harvesting.

61 Pithing of cattle intended for human or animal consumption is prohibited. This applies to slaughter on farms and in abattoirs.

62 More detailed guidance on abattoir practices for controlling exposure to SRM is contained in the *Meat Hygiene Service manual of official controls* (available from the plant operator on request).

Carcass-dressing

Cattle destined for human consumption

63 When slaughtering cattle for food for human consumption, there is a risk of exposure to the BSE agent which may rarely be present in brain and spinal cord. Exposure to these tissues could occur during removal, inspection and disposal of heads, harvesting of the tongue, splitting of the carcass and removal and disposal of the spinal cord.

64 Consideration should be given to ways in which all slaughterhouse workers can be adequately protected against such exposure. This should include the use of saws that minimise the spread of central nervous tissue, for example, saws that cut out the spinal column without exposing the spinal cord. Face protection, apron and gloves and suitable screens should be used where there is a likelihood of contamination by splashing. Workers should avoid direct contact with the spinal fluid which may contain brain particles draining from the carcass during and after removal of the head.

Cattle destined for disposal

65 When cattle are destined for disposal and will not be entering the food chain, the above precautions should always be taken if dressing or head removal is carried out. In addition, any unnecessary exposure to the brain and spinal cord should be avoided, including inserting a bung into the bolt-hole and by splitting carcasses off-centre leaving the spinal column intact.

Disposal of SRM

66 SRM must be disposed of in accordance with Regulation EC 1774/2002 - the 'EU Animal By-Products Regulation' (see: www.defra.gov.uk/animalh/bse/publichealth/srm.html). The material is distinguished as SRM by staining with a specific blue dye (Patent Blue V). All those who may come into contact with SRM should be provided with appropriate PPE and maintain high standards of cleanliness, for example, hauliers during loading of the material at abattoirs and unloading at rendering plants.

67 Personal contamination by splashing should be avoided during disposal operations. Waterproof protective clothing including gloves and face-shield should be used when, for example, hosing out a vehicle or site after delivery of SRM, or when carrying out maintenance work on plant. Protective clothing should be removed before entering the cab of a vehicle or doing other work and before smoking, taking meal breaks etc. Further information on good hygiene practice and PPE can be found in the section *Precautions at work* (see paragraphs 78-83, Table 1 and Table 2).

68 Protective clothing should be kept apart from other clothing and kept clean by thorough and regular washing. Workers should ensure they wash themselves thoroughly after possible exposure to SRM.

Cleaning and disinfection of facilities, vehicles and equipment

69 The BSE agent is resistant to routine methods of disinfection. As a result, chemical disinfection using standard disinfectants of containers, vehicles, work surfaces, floors etc exposed to contamination by SRM is not practicable. Although caustic agents are partially effective and used in certain situations (such as the decontamination of rendering plants), thorough cleaning by dilution with large volumes of hot water and detergent is recommended for most circumstances. Further advice on cleaning chemicals and processes is available in *Transmissible spongiform encephalopathy agents: Safe working and the prevention of infection*[1] (see: www.advisorybodies.doh.gov.uk/acdp/tseguidance/Index.htm).

70 During cleaning, use as low a pressure as practicable when hosing down an area to minimise splashing and the spreading of the BSE agent. Hosing must not be undertaken if it contravenes hygiene legislation. Make sure heavy debris has been removed from the work area before pressure cleaning. Particles of solid material falling onto the floor or hosed out of storage bays, hoppers or vehicles etc should be trapped by a sieve or filter to prevent them entering drainage systems and sent for rendering as SRM. It is essential that you carry out a risk assessment for all cleaning work in your abattoir, using low and high pressure, and put appropriate controls in place.

Carcass meat and other offals

71 Meat, edible offals and blood are not considered to present a risk from BSE. However, the usual standards of occupational and personal hygiene should be maintained and these will protect against the possibility of exposure to other infectious agents that may be present.

Rendering, storage and disposal of greaves from SRM

72 This advice refers to SRM and greaves, MBM and tallow prepared from SRM and subsequently stored or disposed of in approved Category 1 facilities.

Note: SRM and any known TSE-infected material is designated Category 1 and cannot enter a Category 2 or 3 premises even after processing.

73 Rendering of SRM tissues may not completely inactivate the BSE agent if it is present. As a result there may be residual infectivity in the products of rendering. However, any SRM that originates from a BSE-infected animal will be greatly diluted by the volume of tissues which originate from the majority of animals, which are not infected. This reduces the risk of infectivity.

74 Those working with MBM should consider the potential routes of transmission as part of their risk assessment. During MBM production and subsequent transportation, storage and any grinding before disposal, particular emphasis should be given to work activities where dust may be generated. Although there is no evidence that BSE infection can be transmitted through the inhalation of airborne particles, it is prudent to minimise exposure to aerosols and dusts and to protect cuts and grazes in keeping with the normal principles of occupational hygiene (see the section on *Precautions at work* - paragraphs 78-83, Table 1 and Table 2).

75 Standard dust control measures should be used to enclose processes and minimise handling as much as possible. Local exhaust ventilation (LEV) equipment fitted with suitable dust filters may also be of use, for example at filling and tipping points. Where LEV is used, it is essential that the captor hood is placed as close as possible to the source of any potential dust exposure. Suitable equipment may be fixed or portable so that it can be removed for maintenance or clearing of blockages.

76 Where grinding of MBM cannot be avoided, systems such as enclosed conveyors should be used.

77 If infected, tallow is likely to have low levels of infectivity compared to MBM. As tallow is a liquid it is handled in closed systems, making exposure less likely. Nevertheless, when handling spillages etc, normal principles of occupational hygiene should be applied.

Precautions at work

Introduction

78 A risk assessment will reveal what the hazards are in your workplace and help to evaluate the potential risks involved in each work operation. Through this risk assessment it is possible to select suitable control measures to manage the risks sensibly. Employers are required under COSHH to carry out a risk assessment to

identify the control measures necessary to either prevent or minimise exposure of employees to a source of infection.

79 One of the first considerations should be changing the way you work so the job, task or equipment that exposes your employees to a source of infection is replaced by an alternative that prevents exposure.

80 If you can't prevent exposure to BSE-infected tissue or animals, then COSHH requires that you adequately control this exposure. This means reducing the risk of infection to a level that won't present a risk to health. However, you need to remember that, unlike some chemicals, there are no exposure limits for the BSE agent. Your control measures need to take into account the fact that experts cannot be certain as to what level of exposure to the BSE agent could cause vCJD.

81 COSHH lists eight generic principles of good practice which must be applied to obtain effective and reliable control of exposure. These are also available online at: www.hse.gov.uk/coshh/oelframework.htm.

✔	Design and operate processes and activities to minimise emission, release and spread of substances hazardous to health.
✔	Take into account all relevant routes of exposure – inhalation, inoculation, skin absorption and ingestion – when developing control measures.
✔	Control exposure by measures that are proportionate to the health risk.
✔	Choose the most effective and reliable control options which minimise the escape and spread of substances hazardous to health.
✔	Where adequate control of exposure cannot be achieved by other means, provide, in combination with other control measures, suitable personal protective equipment.
✔	Check and review regularly all elements of control measures for their continuing effectiveness.
✔	Inform and train all employees on the hazards and risks from the substances with which they work and the use of control measures developed to minimise the risks.
✔	Ensure that the introduction of control measures does not increase the overall risk to health and safety.

Figure 2 COSHH principles of good practice

82 Engineering controls should be used in some circumstances, for example, for ventilation and dust control. However, the main risk of exposure is from contamination through an inoculation injury (ie skin penetrating cut or graze by a sharp object), an existing open wound, or splashing of mucous membranes (ie mouth, nose and eyes). The most basic safeguard is to follow two main approaches for the control of BSE infection:

- the basic control principles of good *occupational hygiene* should be applied to all situations of work with animals/carcasses (see Table 1). You may also need to supplement these measures with other controls depending on the work activity; and
- the principles of good *environmental hygiene and design* (see Table 2) to stop or limit the presence of the BSE agent in the workplace. This applies on a routine basis in order to keep your workplace and the equipment you use clean.

83 The precautions in Tables 1 and 2 are generally applicable wherever there is a risk of exposure to potentially BSE-infected material. These control measures will also reduce the risk from other infections that may be present in cattle. Other recommendations that are particular to a specific type of work or occupation are discussed in the section on *Precautions at work* (paragraphs 78-83, Table 1 and Table 2) and Appendix 1 respectively.

- Adhere to safe working practices and avoid or minimise the use of tools and equipment or procedures likely to cause cuts, abrasions or puncture wounds and personal contamination.
- Where use of such equipment is unavoidable, wear suitable personal protective clothing (PPE) to prevent cuts, puncture wounds and personal contamination. This may include chain-mail gloves when using knives in the abattoir, plastic aprons, gloves, rubber boots or disposable overshoes, face visors and arm and body protections, if appropriate.
- Cover all new and existing cuts, abrasions and skin lesions with waterproof dressings and/or gloves before starting work. Employers must consider alternatives to gloves if employees have known or potential dermal sensitivities (such as a latex allergy), and ensure appropriate surveillance is in place to monitor possible exposure.
- If cuts or puncture wounds occur while working, wash thoroughly with soap and running water only. Encourage the wound to bleed and cover with a waterproof dressing when clean and dry.
- Where there is a risk of the BSE agent entering the eyes or mouth, use face protection. This may include a visor, safety glasses or fixed screen. This equipment should be cleaned as necessary during the working day. If splashed in the eyes or face, wash with running water immediately.
- Wash hands and exposed skin (and arms and face if necessary) before eating, drinking, smoking, taking any medication, using the telephone, applying make-up, inserting contact lenses or going to the toilet etc. Take rest breaks and meals away from the main work area after removing any PPE in a separate area.
- Protective clothing should be disposable, or if this is not practical must be washable, and stored separately from personal clothing. This protective clothing must be cleaned before storage.

Table 1 Guide to the basic hygiene precautions to avoid contamination with BSE

- Ensure where possible that the equipment, workplace and its services are designed to be safe to use and easy to clean.
- Clean all work surfaces and work areas thoroughly according to standard procedures. Wash down areas and equipment regularly with hot water and detergent.
- If using hoses to clean work areas, use as low a pressure as practicable to ensure the job is carried out effectively. Hosing must not be undertaken if it contravenes hygiene legislation.
- If possible, avoid the use of reciprocating saws if the carcass has to be split through the vertebral column.
- Dispose of all contaminated waste safely, stain if it is required by law to do so and ensure it is appropriately segregated, stored and disposed of.
- If work has the ability to produce aerosols or dusts you should take steps to avoid the generation of these aerosols, ie:
  - use a vacuum with an effective filter rather than a brush for cleaning work areas that may be dusty;
  - contain the activity, ie use filters to ensure the aerosols do not escape into the environment;
  - if this is not possible, ensure that respiratory protective equipment is used to protect against aerosols.
- Any engineering systems used in the workplace must be subject to periodic maintenance, as specified by the manufacturers' specifications.

Table 2 Good environmental hygiene procedures and design

Appendix 1 Additional guidance for specific occupations

Abattoir staff

1 It is essential that workers in abattoirs follow good hygiene practices (see Tables 1 and 2) to ensure that they are not exposed to any infectious agents the cattle being processed may be carrying. The new package of hygiene legislation introduced in January 2006 and associated guidance already provide the basis for good practice in abattoirs.

2 The following PPE should be worn during all abattoir work:

- Overalls, protected by a waterproof apron or waterproof leggings.
- Chain mail aprons and/or leggings should be worn where a risk assessment shows that there is a risk of stabbing or cutting injuries.
- Impervious and washable boots.
- Impervious gloves that cover hands and arms if exposed.
- Protective clothing should be disposable, or if this is not practicable must be washable, and stored separately from personal clothing. This protective clothing must be cleaned before storage.
- Provision should be made for visors/face protection equipment (when a risk assessment shows the need for face protection to avoid risks from splashing).

3 Information on precautions for slaughter including stunning and pithing, and cleaning of abattoir premises can be found in paragraphs 54-62 and paragraphs 69-70 respectively. When removing the spinal cord (both manual and vacuum removal of the spinal cord takes place) the following precautions should be taken:

- Vacuum systems should be supplied with a removal tool or rake, ideally fitted to the end of a suction hose, to ensure the removal of the (sticky) spinal cord without the need to use fingers to assist the vacuuming process.
- When vacuum systems are not available, any alternative equipment used should be such that the use of fingers to clean the spinal canal once the cord has been removed is not required.
- All equipment must be capable of being cleaned/disinfected after use.
- Cut resistant gloves (for example, '5' standard) should be worn as necessary, allowing for manual dexterity. These gloves must be capable of disinfection, or single use only.
- Employers should ensure that vacuum systems are adequately filtered to avoid the risk of possible contamination of the environment. This should be considered as part of your risk assessment.

4 The Veterinary Laboratories Agency, in conjunction with HSE, the Meat Hygiene Service and trade unions, have produced guidelines on brain sampling, which can be found at: www.defra.gov.uk/animalh/bse/otm/review/sampling.pdf.

5 Further information is available in the HSE Local Authority Circulars: *Hand knife accidents and protective clothing in the meat industry*[6] (see: www.hse.gov.uk/LAU/Lacs/31-4.htm) and *Hand knife accidents in the meat industry - first aid*[7] (see: www.hse.gov.uk/lau/lacs/31-5.htm).

6 The FSA web page provides details on work in the meat industry (see: www.foodstandards.gov.uk/foodindustry/guidancenotes/anchor_27854).

7 HSE produces advice on preparing cattle for slaughter in HSE Agriculture Information Sheet No 34 *Preparing cattle for slaughter*[8] (see: www.hse.gov.uk/pubns/ais34.pdf).

8 The British Meat Manufacturers' Association has produced guidance on the safe handling of potentially diseased carcasses. This can be purchased from the British Meat Processors' Association, 2 Cock Lane, London EC1A 9BU Tel: 020 7329 0776.

Farmers

9 Farmers working with cattle are at low risk of coming into contact with BSE-infected material during the normal course of their work. However, activities such as slaughter or dressing may present a higher risk. Farmers should also be aware of the possible physical risk from contact with infected cattle whose behaviour may change.

10 Defra publishes additional guidance which may be useful to farmers:

- Advice for farmers about BSE in cattle can be found at: www.defra.gov.uk/animalh/bse/publications/bse-adv.pdf.
- Information on BSE as a notifiable disease can be found at: www.defra.gov.uk/animalh/bse/publichealth/notification.html.

11 The Food Standards Agency (FSA) provides guidance on:

- Meat and meat hygiene (see: www.food.gov.uk/foodindustry/meat/).
- Private slaughter of livestock guidance notes (see: www.foodstandards.gov.uk/foodindustry/guidancenotes/meatregsguid/livestockguidance/).
- Northern Ireland Private Slaughter of Livestock Guidance (see: www.food.gov.uk/multimedia/pdfs/privatekillguidanceni.pdf).

12 HSE produces advice on preparing cattle for slaughter (see HSE Agriculture Information Sheet No 34 Preparing cattle for slaughter8 at: www.hse.gov.uk/pubns/ais34.pdf).

Veterinary surgeons

13 Veterinary surgeons should adopt standard precautions when working with animals, in order to protect against a number of zoonotic diseases (see HSE Agriculture Information Sheet No 2 *Common zoonoses in agriculture*[9] at: www.hse.gov.uk/pubns/ais2.pdf for more information). This involves good occupational hygiene (see Table 1) including the provision and correct use of PPE, taking care to avoid cuts, and following appropriate cleaning and inactivation procedures.

14 Veterinary surgeons are in daily contact with diseases which may be communicable to humans and must therefore take all necessary precautions to minimise the risk to themselves and to people around them. It is important to emphasise that the regular use of normal hygiene precautions will minimise the risk of any such diseases spreading from animal to man. Specific advice for particular procedures is below.

Initial examination of suspect BSE cases

15 The private veterinary surgeon may be the first person to be called by the farmer to make a diagnosis. Extra care must always be taken when examining a BSE suspect:

- Isolate the animal, away from noise.
- Avoid handling in places where an excited cow could trap someone. Ensure free access to exits.
- Handle firmly but quietly.
- Arrange for the animal to be restrained safely, preferably in a crush.
- When examining the oral cavity, wear plastic or latex gloves and carefully wash off any traces of saliva from protective clothing.
- BSE suspects may kick out violently and repeatedly so take care when examining the udder. Similarly, examination of the head may be resented – head shyness is common.
- Notify the Divisional Veterinary Manager (DVM) immediately BSE is suspected. Note that milk from a BSE suspect placed under restriction by Defra may only be fed to the animal's own calf.

Venepunture

16 If blood samples are to be taken for differential diagnosis, use evacuated tubes rather than syringes. Dispose of needles carefully into an appropriate safe container. Rigorous standards of hygiene should be applied to the handling of all samples. Blood splashes should be washed thoroughly.

Calving, cleansings and caesarean sections

17 The offspring of confirmed BSE cases will, if they were born within two years of the clinical onset of disease in the dam, be slaughtered under the offspring cull. The slaughter of BSE suspects will not be postponed to allow a suspect to calve normally and, in view of the theoretical risk to humans and the fact that the placenta of sheep infected with scrapie is known to be infectious, **caesarean sections are contraindicated.**

18 Suspect animals which do calve must be housed while calving and for 72 hours afterwards. When calving or cleansing a BSE suspect, wear washable protective clothing, arm-length gloves and face protection to avoid splashing of eyes and mouth. Always avoid direct handling of placenta. If unable to do so, wear gloves.

19 After calving, the isolation box must be washed down and disinfected in line with advice from Defra officers. For suspects under movement restrictions (Form A), cleansings must be disposed of by rendering or incineration in accordance with the requirements of the Animal By-Products Regulations (information about these can be found at: www.defra.gov.uk/animalh/by-prods/default.htm).

Accidents

20 When handling suspects, care should be taken to avoid cuts and puncture wounds. Accidental injuries should immediately be washed thoroughly in running water and further first-aid treatments applied, as appropriate to the type of injury. Existing cuts and abrasions should be covered with waterproof dressings.

Other information

21 Veterinary surgeons should be aware of the species that are able to carry the BSE agent that they may encounter in the course of their work. Cattle are of primary concern, but BSE infectivity has also been seen in domestic cats and some captive wild antelopes and big cats. However, the risk of transferring this infectivity from live animals to humans is low/virtually non-existent. In the past there have been very low numbers of cases of TSE in these species.

22 Necropsy and surgery of susceptible species presents a higher risk of exposure, especially if there are clinical signs of BSE infection. Particular care should be taken with the bovine SRM. The distribution of infectivity in most other susceptible species is not known, however, the CNS and the Lymphoreticular system are the tissues most likely to carry infectivity. The post-mortem examination of BSE suspects is not permitted.

Collectors (knackermen and hunt kennels) and deadstock hauliers

23 Since May 2003, it has been illegal to bury or burn fallen stock on farms (other than in very limited circumstances). Under the Animal By-Products Regulations (see: www.defra.gov.uk/animalh/by-prods/default.htm), all fallen stock must be taken to approved premises for disposal or incineration on a farm in an approved incinerator.

24 Fallen stock or casualty animals have a higher risk of BSE infectivity, and should be handled with care. When working with dead animals, appropriate PPE should be provided to prevent or control the risk of deep penetrating wounds or cuts and scratches with sharp instruments such as knives and cleavers. The spinal cord should not be removed by hand. Care should be taken when opening the carcass or removing the head of the animals. Face protection eg visors/full-face protection equipment should be worn if there is a risk of splashing.

25 Further information is available in the HSE Local Authority Circulars: *Hand knife accidents and protective clothing in the meat industry*[6] (see: www.hse.gov.uk/lau/lacs/31-4.htm) and *Hand knife accidents in the meat industry - first aid*[7] (see: www.hse.gov.uk/lau/lacs/31-5.htm).

Transport of the by-products of rendering

26 By using front-end loader shovels or rubber belt elevators, you should minimise dust generation and reduce the risk of manual handling accidents when loading MBM into and out of storage sites. The use of ventilated cabs fitted with suitable dust filters also provides protection against possible exposure to dusty material. When loaded, all haulage vehicles need to be tightly secured and sealed with robust covers to prevent spillage during transportation. Once in place the covers should only be loosened and removed at the destination or disposal point.

27 Vehicles used to transport carcasses should be thoroughly cleaned and disinfected after unloading.

28 Defra has produced advice on the loading and unloading of animal by-products (see: www.defra.gov.uk/animalh/by-prods/guidance/loading-unloading.pdf).

29 Further guidance on the transport of TSE-infected material is available in the ACDP TSE Guidance (see: www.advisorybodies.doh.gov.uk/acdp/tseguidance/tseguidance_annexd.pdf).

30 The FSA has also produced guidance on cleaning and disinfection facilities for livestock vehicles (see: www.foodstandards.gov.uk/foodindustry/guidancenotes/meatregsguid/cleandisinguid).

Butchers

31 It is highly unlikely that a carcass sourced from a licensed premises at a butchery will contain any BSE infectivity. Nonetheless, normal care and good practice should be taken when handling carcasses to avoid cuts, scrapes and

grazes particularly in butcher premises that are authorised to remove SRM vertebral column from 24-30 month bovines. Appropriate PPE is also recommended.

32 The FSA has produced guidance on the Meat Product Regulations (see: www.foodstandards.gov.uk/foodindustry/guidancenotes/meatregsguid/meatregsguidebutchers). The FSA website also provides details on work in the meat industry (see: www.foodstandards.gov.uk/foodindustry/guidancenotes/).

Enforcement officers

33 Officers will be instructed by their employers on appropriate precautions to take.

Rendering staff

34 Occupations which may handle the products of rendering include workers in:

- incineration plants;
- rendering plants;
- power stations;
- hauliers;
- storage sites;
- cement works.

35 Defra provides information on animal by-products and rendering (see: www.defra.gov.uk/animalh/by-prods/default.htm).

Workers in zoos and circuses

36 While BSE primarily occurs in cattle, other animals have been known to incubate the disease. This includes domestic cats and some captive wild *Felidae* and *Bovidae* (big cats and antelopes).

37 The risk from live animals is small, however this risk increases from contact with a suspect case or from casualty animals. Suspect cases must be reported to Defra immediately.

Cleaning and waste disposal workers

38 Make sure heavy debris has been removed from the work area before pressure cleaning. During cleaning, use as low a pressure as practicable when hosing down the work area. Hosing must not be undertaken if it contravenes hygiene regulations, eg in an abattoir when carcasses are nearby. Gutters should be adequately sieved or filtered to ensure particles of solid material falling onto the floor or hosed out of storage bays or hoppers etc are trapped to prevent them entering drainage systems.

39 Respiratory protection should not be required for most cleaning. However, some maintenance procedures, eg clearing blockages, cleaning trucks, storage areas and LEV equipment, may present a risk of dust or splash exposure, and suitable protective equipment for mucous membranes should be worn. It is essential that you carry out a risk assessment for all cleaning work, and put appropriate controls in place.

40 An air-fed visor will provide protection against splashing and dust contamination in rendering facilities. Alternatively, a disposable respirator with goggles may be worn when exposure is limited.

41 Removal of all debris after emptying vehicles and storage sites may require the use of an industrial vacuum cleaner. All material collected should be suitably bagged and disposed of by incineration.

42 Further guidance on decontamination and waste disposal is available in the ACDP TSE Guidance (see: www.advisorybodies.doh.gov.uk/acdp/tseguidance/tseguidance_annexc.pdf). The Environment Agency also provides information on the regulatory controls governing the disposal of waste (see: www.environment-agency.gov.uk/subjects/waste/?lang=_e).

Working with sheep

43 Scrapie is a TSE which affects sheep. It is not thought that humans can acquire scrapie as a result of contact with scrapie-infected sheep or by the consumption of scrapie-infected animals. It is not thought that humans can contract the disease from sheep, but precautions have been put in place to protect people in the event that a link is established (see paragraphs 19-25) between sheep and BSE.

44 Further information on scrapie can be found on Defra's scrapie pages (see: www.defra.gov.uk/animalh/bse/othertses/scrapie/index.html). Advisory notes for farmers on scrapie in sheep are also available at: www.defra.gov.uk/animalh/bse/othertses/scrapie/adv-note.pdf.

Appendix 2 Example risk assessments

For a farmer

Name of organisation	**AN Other Farm**		
Name of assessor	**Mr Farmer**	Date of assessment	**5 April 2005**
General description of work	**Cattle farm**		
Specific activity assessed	**Rounding up cattle to take to the abattoir**		
List of source(s) of hazard Consider quantities handled/frequency of contact Consider whether the hazard can be eliminated	**Risk of physical damage ie from kicking during milking or transport** **Hazard cannot be eliminated**		
List of those who are at risk from the hazard	**All staff involved in the round up/farm activities**		
List of control measures	**Pay attention to any abnormal behaviour in animals. When aware of a possible suspect case, never attempt work with the animal unless at least two people are present**		
Further information			

For a veterinary surgeon

Name of organisation	**AN Other Veterinary Practice**		
Name of assessor	**Dr Vet**	Date of assessment	**5 April 2005**
General description of work	**Diagnosing diseased animals**		
Specific activity assessed	**Diagnosing cattle on the farm**		
List of source(s) of infection Consider quantities handled/ frequency of contact Consider whether the hazard can be eliminated	**Contact with animal body fluids and waste ie during bleeding or sampling for other diseases** **Possible physical hazard from kicking/biting animal** **Not possible to eliminate hazard**		
List of those who are at risk from sources of infection	**Vet, veterinary assistants, farm staff**		
List of control measures	**Cover cuts and grazes with waterproof dressings before starting work** **Waterproof boots and gloves to be worn when handling animals** **Reduce risk of puncture wounds by taking due care when disposing of needles after use** **Care to be taken during epidural anaesthesia** **Care taken to avoid the tonsils when performing a mouth examination** **Additional PPE, including gloves and eye protection when performing necropsies, in the event that the gut is split open**		
Further information			

For abattoir work

Name of organisation	**AN Other Abattoir**		
Name of assessor	**Mr Abattoir-Manager**	Date of assessment	**5 April 2005**
General description of work	**Slaughter of cattle for human consumption**		
Specific activity assessed	**Removal of spinal cord**		
List of source(s) of infection Consider quantities handled/ frequency of contact Consider whether the hazard can be eliminated	**Spinal cord of X number of cattle handled per operative per day** **Spinal cord has to be removed as per food hygiene and TSE legislation. Hazard cannot be eliminated**		
List of those who are at risk from sources of infection	**Operatives removing spinal cord** **Cleaning staff**		
List of control measures	**PPE including:** **Overalls, protected by a waterproof apron or waterproof leggings** **Chain mail aprons and/or leggings when there is a risk of stabbing or cutting injuries** **Impervious and washable boots** **Impervious gloves that cover hands and arms if exposed** **Face protection to avoid risks from splashing provision ie visors/face protection equipment**		
Further information			

For companies transporting specified risk material (SRM)

Name of organisation	**AN Other Transport Systems**		
Name of assessor	**Mr Transport-Manager**	Date of assessment	**5 April 2005**
General description of work	**Contract transport of range of commodities**		
Specific activity assessed	**Moving specified risk material from abattoirs to ...**		
List of source(s) of infection	**Specified risk material (SRM)**		
Consider quantities handled/ frequency of contact	**... tons of SRM are transported per ... Compliance with the Carriage of Dangerous Goods regulations** **Risk from hosing down vehicles for cleaning- potential production of splashing effects or aerosols.**		
Consider whether the hazard can be eliminated	**Hazard cannot be eliminated**		
List of those who are at risk from sources of infection	**Lorry driver and assistant putting SRM loads into lorry at abattoir and removing them at disposal site.** **Abattoir staff assisting our staff.**		
List of control measures	**Cover cuts and grazes with waterproof dressings before starting work** **Waterproof boots and gloves to be worn Consider PPE to prevent splashing when hosing down vehicles**		
Further information	**See Carriage of Dangerous Goods Regulations**		

For renderers

Name of organisation	**AN Other Rendering Plant**		
Name of assessor	**Mr Renderer**	Date of assessment	**5 April 2005**
General description of work	**Rendering**		
Specific activity assessed	**Rendering specified risk material from cattle**		
List of source(s) of infection Consider quantities handled/ frequency of contact Consider whether the hazard can be eliminated	**Specified risk material (SRM)** **... tons of SRM are rendered per ...** **Hazard cannot be eliminated**		
List of those who are at risk from sources of infection	**Staff moving SRM from lorry to our storage facilities** **Staff loading SRM into rendering machine**		
List of control measures	**Cover cuts and grazes with waterproof dressings before starting work** **Waterproof boots and gloves to be worn** **Consider using LEV to remove dust in atmosphere, PPE to cover eyes and mouth, possible respiratory equipment**		
Further information			

Appendix 3 List of contributors

Department of Environment, Food and Rural Affairs
Department of Health
Food Standards Agency
Health and Safety Executive
Meat and Livestock Commission
Meat Hygiene Service
Rural Payments Agency
Unison
Veterinary Laboratories Agency

Professor Don Jeffries – Chair of the Transmissible Spongiform Encephalopathy Working Group of ACDP.
Professor Phil Jones – Transmissible Spongiform Encephalopathy Working Group and ACDP Member.
Mr Ray Bradley – Transmissible Spongiform Encephalopathy Working Group member and former member of the Spongiform Encephalopathies Advisory Committee.

Appendix 4 Contact details

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Website: www.hse.gov.uk

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For information about food safety

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Please address faxes to the Customer Contact Unit on 020 7238 2188

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Website: www.scotland.gov.uk/topics/agriculture

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new.wales.gov.uk/topics/environmentcountryside/ahw/;jsessionid=C04EAE5C446420DE38819A2803C40B60?lang=en

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3 *Control of substances hazardous to health (Fifth edition). The Control of Substances Hazardous to Health Regulations 2002 (as amended). Approved Code of Practice and guidance* L5 (Fifth edition) HSE Books 2005 ISBN 0 7176 2981 3

4 *Management of health and safety at work. Management of Health and Safety at Work Regulations 1999. Approved Code of Practice and guidance* L21 (Second edition) HSE Books 2000 ISBN 0 7176 2488 9

5 ACDP publication *Infection at work: controlling the risks* Available online at: www.hse.gov.uk/pubns/infection.pdf

6 HSE Local Authority Circular: *Hand knife accidents and protective clothing in the meat industry* Available online at: www.hse.gov.uk/LAU/Lacs/31-4.htm

7 HSE Local Authority Circular: *Hand knife accidents in the meat industry - first aid* Available online at: www.hse.gov.uk/lau/lacs/31-5.htm

8 *Preparing cattle for slaughter* Agriculture Information Sheet AIS34 HSE Books 1999 Web version: www.hse.gov.uk/pubns/ais34.pdf

9 *Common zoonoses in agriculture* Agriculture Information Sheet AIS2(rev2) HSE Books 2000 Web version: www.hse.gov.uk/pubns/ais2.pdf

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This document contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.

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Published by the Health and Safety Executive WEB22 01/07 31 of 31 pages