

CO/15769/2009

IN THE HIGH COURT OF JUSTICE
QUEEN'S BENCH DIVISION
ADMINISTRATIVE COURT

B E T W E E N:

THE QUEEN

on the application of

BADGER TRUST

Claimant

- and -

THE WELSH MINISTERS

Defendants

WITNESS STATEMENT OF
PROFESSOR CHRISTIANNE GLOSSOP

I, CHRISTIANNE GLOSSOP, of the Welsh Assembly Government, Cathays Park, Cardiff CF10 3NQ, STATE as follows:

1. I am the Chief Veterinary Officer of the Welsh Assembly Government. I have held this position since June 2005. I am in charge of the Office of the Chief Veterinary Officer, which is a division of the Department for Sustainability and Rural Development within the Welsh Assembly Government. The Office of the Chief Veterinary Officer is responsible for animal health and welfare policy and strategy in Wales. As the Chief Veterinary Officer, I am the senior officer responsible for the health and welfare of farmed livestock and companion animals (i.e. animals kept by

private individuals or groups for companionship, hobbies, etc), and animals kept in various working or recreational contexts.

2. As Chief Veterinary Officer, one of my prime objectives is to raise standards of animal health and welfare in Wales, in particular through protecting against the introduction and spread of infectious disease, so as to eliminate the risk of infection wherever possible. As such, I am the lead officer on the issue of tuberculosis in cattle in Wales.
3. I qualified at the Royal Veterinary College, University of London, in 1979, and completed my PhD on aspects of cattle fertility at the same college in 1982. I am a member of the Royal College of Veterinary Surgeons. I have specialised in food animal production and medicine throughout my career, with a particular interest in breeding technologies. I am a past President of both the International and British Pig Veterinary Societies, and I have also served on the Rare Breeds Survival Trust and the British Veterinary Association Councils. I am a visiting lecturer and honorary professor at the Royal Veterinary College, London.
4. I joined the State Veterinary Service in England (now known as “Animal Health”) as a Veterinary Officer in 2001, working in the Gloucester Division. Following the foot and mouth disease epidemic in that year, I worked primarily on cattle tuberculosis, testing herds, dealing with tuberculosis breakdowns and overseeing completion of epidemiological reports (“TB99” reports), including those which formed part of the data of the Randomised Badger Culling Trial (to which I refer further below). I spent

a year as Divisional Veterinary Manager in Reading before joining the Welsh Assembly Government as Chief Veterinary Officer in June 2005.

5. I make this witness statement in relation to the Claimant's application for judicial review of the decision taken by the Minister for Rural Affairs ("the Minister") to make the Tuberculosis Eradication (Wales) Order 2009 ("the Order").

6. Where the facts stated in this witness statement are within my own knowledge, they are true, and where they are not within my own knowledge, they are true to the best of my information and belief by reason of the fact that they are derived from information provided to me by the Minister or by officials in the Department for Rural Affairs. There is exhibited to this witness statement a paginated "Exhibit CG1", comprising true copies of various documents to which I refer in this witness statement. In this witness statement, references in square brackets are references to page numbers of that exhibit.

The Order

7. The Order was made by the Minister, on behalf of one of the Welsh Ministers, pursuant to the Animal Health Act 1981 because she was satisfied that tuberculosis exists in the wild badger population in Wales, that the disease is being transmitted from badgers to cattle, and that the destruction of wild badgers in Wales is necessary in order to eliminate or substantially reduce the incidence of tuberculosis in cattle in Wales.

8. The Order was made on 28 September 2009 and came into force on 21 October 2009, and it provides that an authorised officer may destroy badgers. In practical terms, the Order provides the necessary lawful authority for the Welsh Assembly Government to carry out a cull of badgers. It also provides the necessary lawful authority for the Welsh Assembly Government to carry out a programme of vaccinating badgers.

9. It is important to note that the Minister has taken a particular personal interest in the issue of tuberculosis in cattle in Wales. As an Assembly Member, Elin Jones AM was until 2007 a member of the former Environment, Planning and Countryside Committee of the National Assembly for Wales. This committee considered aspects of the tuberculosis problem in Wales on frequent occasions. In 2006, she became shadow Minister for Environment, Planning and Countryside. On 9 July 2007, the One Wales (Coalition) Government was formed and Ms Jones was subsequently made Minister for Rural Affairs. One of the stated aims of the One Wales Government is to “vigorously pursue a programme of bovine TB eradication”. On taking up her new portfolio, the Minister stated that she aimed to give priority to the issue of bovine tuberculosis and the comprehensive Tuberculosis Eradication Programme was the result. It is an approach that has been agreed by the Cabinet of the Welsh Assembly Government, endorsed by the four main political parties in Wales, and is in line with the recommendations of the bovine tuberculosis subgroup of the European Commission Task Force on monitoring animal disease eradication.

10. Throughout Ms Jones’ time in post as Minister, I have had regular and frequent meetings with her on this issue, and she has received regular and frequent updates from myself and other officials on it. It would be impractical to refer to all of those

meetings and updates in this witness statement, particularly as most of them would not have been minuted.

Tuberculosis in cattle

11. Tuberculosis in cattle is an infectious disease that has a significant impact on the health and welfare of the national cattle herd in Wales, and in other parts of the rest of the United Kingdom.

12. It is a serious, chronic, debilitating disease arising from infection by *Mycobacterium bovis* (“*M bovis*”). Clinical signs include gradual loss of condition despite adequate nutrition, depression, weakness and reduced activity. Infection usually affects the respiratory tract and associated lymph nodes, and for this reason infected animals may also have a persistent cough, show respiratory distress and nasal discharge. In female cattle the disease can result in progressive hardening of the udder and enlargement of the associated lymph nodes. In such cases *M bovis* may be detected in milk samples from infected cattle.

13. There is no efficacious treatment for tuberculosis in cattle. It is a zoonotic disease, i.e. one that is transmissible to humans, and it is also infectious to other mammals, which means it has serious implications beyond the health of cattle. A human coming into contact with an infected animal would be at risk of infection. *M bovis* is categorised by the Advisory Committee on Dangerous Pathogens as a category 3 organism (i.e. it is listed under “Hazard Group 3” along with such pathogens as the West Nile Fever virus and the Rabies virus).

14. Infected cattle can spread *M bovis* via a number of routes including aerosol (i.e. inhalation of respiratory droplets produced when coughing or sneezing), respiratory secretions (e.g. mucus), faeces, urine, milk and semen. The spreading of *M bovis*, particularly in aerosols, respiratory secretions and milk, represents a significant risk to most mammals, including humans. All infected animals are considered to be infectious.
15. Wales, in common with many other countries, has a tuberculosis eradication policy, based on testing and the slaughter of cattle believed to be infected, in order to protect both human and animal health, and to prevent the further spread of the disease. Article 3 of Council Directive 77/391/EEC, entitled “introducing community measures for the eradication of brucellosis, tuberculosis and leucosis in cattle” requires Member States in which the cattle population is infected by bovine tuberculosis to draw up plans for accelerating the eradication of this disease in their national territories.
16. The European Commission has formally approved *the UK (GB) TB Eradication Plan 2010*, which was submitted in September 2009 and which covers Wales, England and Northern Ireland. That plan specifically referred to a proposed cull of badgers in Wales.

Control of tuberculosis in cattle

17. One of the key veterinary principles of infectious disease control is rapid, early identification of infection. This needs to be complemented by a policy aimed at eliminating infection from the population (e.g. within the herd, area, country). In the absence of accepted and efficacious treatment for bovine tuberculosis in cattle,

elimination of infection is achieved by the slaughter of animals testing positive to tuberculosis. The Final Report of the Independent Scientific Group on Cattle Tuberculosis, entitled *Bovine TB: The Scientific Evidence* (June 2007) underlined the importance of taking stringent measures to deal with infection in cattle as soon as it is identified.

18. In the 1930s, a large proportion (up to 40%) of dairy cattle in Great Britain was infected with *M bovis*. This was thought to be responsible for over 50,000 new cases of bovine tuberculosis per year in the human population, and around 2,500 human deaths. In 1935, a voluntary tuberculosis testing scheme for cattle was introduced in an attempt to control the disease. Any animals testing positive for tuberculosis were slaughtered, and infected herds were restricted from moving. This testing and slaughter programme became compulsory in 1950, and by the 1960s bovine tuberculosis was confined to a few pockets in southwest England. However, in the 1970s the prevalence of bovine tuberculosis began to rise again. Great Britain now has one of the highest incidences of bovine tuberculosis in Europe. Significant efforts are being made at a Great Britain level to control the spread of, and ultimately eradicate, this disease.

19. A testing and slaughter programme is central to the eradication strategy for tuberculosis and is carried out on a herd basis. Surveillance for bovine tuberculosis in the Great Britain cattle population comprises a number of elements, including routine regular testing of cattle and slaughterhouse inspection of all bovine carcasses for gross lesions of tuberculosis. When a tuberculosis reactor is identified as a result of the cattle testing, the accepted veterinary opinion is that slaughter is necessary.

Policy to eradicate bovine tuberculosis in Wales

20. Tuberculosis in cattle is a particularly serious problem in Wales. It is one of the biggest threats facing the dairy and beef industry in Wales. As of 30 November 2009, approximately 10% of registered Welsh herds (1,325 farms) were subject to animal movement restrictions related to tuberculosis controls. In 2008, over 12,000 cattle had to be slaughtered because of the disease, an increase of some 50% over the number slaughtered in 2007. The equivalent figure for 2009 was around 11,300 cattle.

21. Bovine tuberculosis is thus exacting a huge cost in terms of animal life and, along with the associated loss of quality breeding genetics, is having a significant impact on businesses and society in rural Wales. Further, the Welsh Assembly Government is required by law to compensate owners of cattle slaughtered by reason of tuberculosis. In the 2000-2001 financial year, the compensation bill was approximately £1.8 million. In the 2008-2009 financial year this had risen to just under £24 million. To this must be added the additional costs incurred in respect of matters such as monitoring (which are met from a central budget for Great Britain currently held by the Department for the Environment, Food and Rural Affairs) and incurred by the industry in respect of bovine tuberculosis controls such as pre-movement testing (i.e. testing cattle for tuberculosis prior to moving them).

22. It is widely accepted that the current rate of increase in cattle having to be slaughtered as a result of bovine tuberculosis is unsustainable for Wales.

23. In the light of this, on 8 April 2008 the Minister announced a policy of eradicating tuberculosis from cattle in Wales, and allocated £27.7 million over three years to pursue this policy. The eradication of tuberculosis in cattle can only be achieved by a comprehensive approach in which all sources of infection are dealt with. The steps that have been (or are to be) taken in Wales include those set out in the Appendix to this witness statement.

Transmission of tuberculosis between badgers and cattle

24. There is clear evidence that the transmission of *M bovis* infection between cattle and wildlife species has become an important part of the epidemiology of this disease in Great Britain. Certain wildlife species act as a reservoir of infection which is then transmitted back to cattle, making eradication increasingly difficult. Preventing the spread of tuberculosis within wildlife populations, and also between wildlife and susceptible domestic species (e.g. cattle), are therefore very important elements of an eradication programme: there is no point tackling infection in cattle without also tackling infection in wildlife.
25. The Latin name for badgers is *meles meles*. They are a genus of the weasel (or *mustelidae*) family. There is compelling evidence that badgers not only act as a host for *M bovis*, but also contribute significantly to the disease in cattle. For example, between October 2005 and May 2007, the Welsh Assembly Government carried out a Badger Found Dead Survey in Wales. This showed that in areas where there was a high incidence of bovine tuberculosis in cattle, it was also present in badgers and

there were similarities in the genetic type (spoligotype) of infection found in both cattle and badgers.

26. Failure to address the reservoir of bovine tuberculosis in badgers in Wales would leave a potentially significant source of infection for transmission to cattle. Accordingly, if the policy of eradicating tuberculosis from cattle in Wales is to be achieved, the problem of transmission of tuberculosis from badgers to cattle has to be dealt with.

27. It is important to note, however, that although dealing with the transmission of tuberculosis from badgers to cattle is an important step towards eradicating tuberculosis in cattle, it is by no means the only step. The policy aim can only be achieved by a “package” of measures aimed at the rapid early identification of infection, controlling the spread of infection (e.g. through improved husbandry and movement restrictions applied to infected herds of cattle), and the effective management of cattle herd breakdowns (including the testing regime, and the isolation and removal of infected cattle), alongside preventative measures designed to reduce the risk of uninfected herds becoming infected. This is because the epidemiology of tuberculosis is so complex, involving transmission between cattle, and between cattle and wildlife.

Decision to make the Order

28. As part of the policy of eradicating tuberculosis from cattle in Wales, on 8 April 2008 the Minister announced that she would give consideration to the culling of badgers,

alongside additional cattle controls, in accordance with the comprehensive approach described above [CG1, pp 1-22].

29. Subsequent to that 2008 announcement by the Minister, technical experts were commissioned to investigate the potential of different badger control strategies (where possible using Welsh data).

30. The Tuberculosis Eradication Programme is supported by a Programme Board which consists of myself, an independent scientific adviser who was formerly the Chief Scientific Advisor to the First Minister for Wales, a director of Animal Health, a representative of the farming industry, a member of the British Cattle Veterinary Association, and the Head of Tuberculosis Policy for the Welsh Assembly Government. The Programme Board is the group responsible for developing recommendations for the Minister and it draws on the expertise of organisations such as the Food and Environment Research Agency and the Veterinary Laboratories Agency to provide evidence for the decision making.

31. Having taken into account the advice of the Programme Board [CG1, pp 46-51 and 62-97], I produced a submission to the Minister dated 23 March 2009 [CG1, pp 23 - 398]. Although the submission was in my name, other officials also contributed to it and it also summarised the advice on this matter received from the Programme Board. Much of the material included in the submission was published on the Welsh Assembly Government's website on 7 May 2009. However, parts of the submission included in the exhibit to this witness statement have been redacted as they contain material that I have been advised is subject to legal professional privilege.

32. In the submission I put forward three options for a badger control strategy (to be used in conjunction with additional cattle control measures) to remove the disease transmission link between badgers and cattle:

- (1) a non-selective badger cull. The cull would be “non-selective” in the sense that it would not just be badgers that had tested positive for tuberculosis that would be culled, but all badgers that could be trapped would be culled. The objective would be to reduce the badger population in order to reduce the opportunity for contact (and thus disease transmission) between cattle and badgers. This was the option eventually decided upon, leading to the making of the Order;
- (2) the vaccination of badgers against tuberculosis. Such a vaccination strategy would aim to increase immunity within uninfected animals, but obviously it could not remove infection from animals already infected. Within a population that is already infected, therefore, the role of vaccination would be limited to providing some protection to animals that have not yet contracted infection. While vaccination of badgers can contribute to an eradication programme by protecting at risk populations, given the disease picture in Wales, it alone cannot achieve eradication;
- (3) a combined vaccination and selective cull strategy. The cull would be “selective” in the sense that only badgers that had tested positive for tuberculosis would be culled. Current technical and practical limitations

reduce the potential benefits of this approach (e.g. the need to cage-trap and anaesthetise badgers to facilitate testing, and the low sensitivity of the available tests that are practical for use within this context, resulting in only around 50% of infected badgers being identified as such).

33. These three options were considered in detail within my submission, which was supported by published evidence and modelling work commissioned by the Welsh Assembly Government, including the following documents (these and the other evidence considered is available on the Welsh Assembly Government website):

(1) *Badger Control Model - Comparison of Strategies For Wales* [CG1, pp 105-190]. This analysed the effect of different badger culling strategies in Wales. The model outputs indicated that the minimum requirements necessary for a non-selective cull to have a beneficial effect on the level of bovine tuberculosis infection in cattle were a control duration of at least five years, trapping efficiency of at least 50%, and land access compliance of greater than 60%. If any two out of these three requirements are not met, there is a dramatically reduced overall beneficial effect. It also suggested that control areas of greater than 200km² were more likely to produce results where the benefits of control would outweigh any disadvantages. These requirements have been recognised and incorporated into the plans for culling in the present case;

(2) *Badger Vaccination Model - Spatial Strategies Project* [CG1, pp 191-246]. This analysed different vaccination strategies. The Bacillus Calmette-Guerin

(BCG) vaccine has been demonstrated to generate an immune response in badgers against tuberculosis. However, delivering a BCG vaccine by injection to badgers is problematic and the use of an oral bait perhaps holds the greatest promise for mass vaccination. No oral bait formulation currently exists for use in the United Kingdom, although an oral bait is anticipated to be available for field use no earlier than 2014. Vaccination of badgers is highly unlikely to produce any adverse disease effects (e.g. increased incidence of disease) even if the vaccine proves not to be sufficiently effective, or the programme is halted prematurely. However, as mentioned above, vaccination of badgers does not address any existing infection that exists within the population and the level of benefits, in terms of reduction of cattle tuberculosis and the timescale to realise these benefits is not yet known;

- (3) *Badger Control Model for Wales - Trap-Test-Cull-Vaccinate Supplemental Report* [CG1, pp 247-265]. This examined the effects of badger culling, vaccination and a combined trap, test and cull/vaccinate strategy, on badger epidemiology and cattle herd breakdowns. The modelling evidence on the potential outcomes from the combined test, vaccination and culling approach indicated this to be a high risk strategy and with the potential to increase disease incidence. This option, although intuitively reasonable, with only badgers that test positive being culled and the others released following vaccination, failed to deliver the expected benefits when social perturbation (disruption of social groups of badgers as a result of culling some individuals) was factored into the outputs of the model;

34. My advice was in favour of the first option (a non-selective cull) to be carried out in line with the approach identified in the *Badger Control Model - Comparison of Strategies For Wales* document referred to above. This would provide the greatest opportunity for a positive impact on cattle herd breakdowns. My advice was supported by the fact that the vaccination of badgers does not address existing infection in badgers and that outcome of a combined vaccination and selective cull policy was highly unpredictable. After detailed consideration of the available evidence, which included thorough discussion with myself and other officials, the Minister agreed that the first option should be adopted.
35. It would be wrong to focus on my submission of 23 March 2009 as the sole source of information or advice to the Minister in this respect. As mentioned above, the Minister has taken a particular personal interest in the issue of tuberculosis in cattle over several years. Accordingly, she was aware of the substantial scientific evidence available and had good understanding of the balance of argument when she made her decision.
36. On 24 March 2009 the Minister announced that she had formed the view that a cull of badgers was necessary (alongside additional cattle control measures). A copy of her announcement is at pp 1-3 of tab C of the Claimant's bundle.
37. Between April 2009 and 30 July 2009, the Minister consulted on a draft of the Order. The consultation paper is at pp 10-25 of tab C of the Claimant's bundle. A summary of the responses received was published on 30 September 2009, and a copy of the relevant document is at pp 26-41 of tab C of the Claimant's bundle.

38. I prepared a further submission to the Minister on 22 September 2009 [CG1, pp 404-455] (parts of this submission have been redacted as they contain privileged legal advice). This drew the Minister's attention to the outcome of the consultation exercise and various other matters, and recommended that she make the Order.
39. The Minister concluded that her March 2009 view remained valid and therefore she made the Order on 28 September 2009. On 30 September 2009, the Minister published a written statement relating decision to make the Order [CG1, pp 456-458]. The Order came into force on 21 October 2009.
40. The Order was laid before the Welsh Assembly on 30 September 2009, and on 4 November 2009 a motion to annul the Order was debated and overwhelmingly rejected (by 43 votes to 9).
41. As I mentioned above, the culling of badgers can only be one element (albeit an important element) of the package of measures that is required to achieve the Minister's policy aim of eradicating tuberculosis from cattle in Wales. Accordingly, it is important to recognise that the decision was that any culling should take place alongside additional cattle control measures. On 24 March 2009, the Minister announced that officials would work with local vets to identify any further cattle control measures that could contribute to reducing the risk of cattle to cattle transmission of bovine tuberculosis. The measures identified for implementation (in addition to those mentioned in the Appendix to this witness statement) were:

- (1) requiring movements between land holdings within and outwith the area of the cull to be notified and subject to pre-movement testing requirements for tuberculosis;
- (2) frequent movers of cattle to have a whole herd test for tuberculosis at six-monthly intervals;
- (3) all herds infected with tuberculosis to have two clear tests before movement restrictions are lifted;
- (4) the tracing of purchased and sold cattle to be carried out for all land holdings where officially tuberculosis-free status has been withdrawn as a result of cattle testing positive for tuberculosis.

42. In order to consider all potential sources of infection, there will also be a one-off test of all goats and camelids identified within the culling area, and the subsequent management of any infection. The Welsh Assembly Government has also engaged local veterinary surgeons to work with the cattle keepers to provide individual farm biosecurity assessments to determine key practical interventions that would help reduce the risk of their livestock contracting bovine tuberculosis. These will provide a formal assessment of risk and will be supported by specialist veterinary and business advice which will be paid for by the Welsh Assembly Government.

43. It is important to note that such additional cattle control measures were not in force during the Randomised Badger Culling Trial (“RBCT”), which I discuss further below.

The RBCT and the 2008 Jenkins paper

44. I note that in their claim, the Claimants have specifically referred to a paper published by Jenkins *et al* in the International Journal of Infectious Diseases (see pp 47-55 of tab C of the Claimant’s bundle) (“the 2008 Jenkins paper”). I am familiar with this paper and I myself read it when it was published. The Minister was provided with a copy of the 2008 Jenkins paper and she had read it before she took the decision to make the Order. It was also referred to in my submission of 23 March 2009 and it was referred to during the National Assembly for Wales’ Rural Development Sub-Committee discussion on the progress report of the bovine Tuberculosis Eradication Programme on 8 July 2009.
45. In summary, the 2008 Jenkins paper is a follow-up analysis of the results of the RBCT. The RBCT was carried out in England from 1998 onwards. The design of the trial was for five years of annual culling of badgers in ten “triplets” of trial areas (although these were to a certain extent interrupted by the foot and mouth disease epidemic in 2001, as was the cattle testing regime for tuberculosis). The final culls were all completed by the end of 2005. The 2008 Jenkins paper analysed the data from these culls that were available up until 6 January 2008.
46. Having discussed the 2008 Jenkins paper with the Minister, I can confirm that at the time of the decision to make the Order she understood that the benefits of badger

culling (in terms of reducing the incidence of tuberculosis infection in cattle) continued in the two years following culling, although she also recognised that tuberculosis infection was still present in the cattle population within the cull areas and that there was an ongoing risk that at some stage the incidence of infection in cattle was likely to start to increase again, give that it had not been eliminated completely. She had read the comment in the paper that “the benefits observed in the first years post-culling will dissipate as badger numbers increase” and understood it within this context.

47. The Minister also understood the potential risk of an increased incidence of tuberculosis in cattle herds. This phenomenon was reported in the Final Report of the Independent Scientific Group on Cattle Tuberculosis, entitled *Bovine TB: The Scientific Evidence* (June 2007). The authors hypothesised that the effect was the result of social perturbation of badger groups resulting from disturbance from culling. The potential for social perturbation of badger groups following culling and the measures planned to minimise the risks were drawn to the Minister’s attention in the submission of 23 March 2009.
48. The 2008 Jenkins paper also comments that “the overall reduction in the incidence of confirmed herd breakdowns associated with widespread badger culling remains modest”. The Minister has understood from the outset that tuberculosis in cattle can only be eradicated by tackling all sources of infection together, and that the RBCT did not seek to do this. Rather, the RBCT sought to test the effect of badger culling alongside the then existing policy for control of tuberculosis in cattle: it did not

attempt to impose additional cattle control measures such as an increased cattle testing regime.

49. In fact, as a result of the foot and mouth disease outbreak, cattle testing for tuberculosis was stopped throughout Great Britain for the majority of 2001 and early 2002. A dramatic increase in incidence of tuberculosis in cattle in England and Wales followed the end of the outbreak. It is highly possible that the final outcome of the RBCT was affected as a result, and that the benefits of culling would have been greater if the foot and mouth disease epidemic had not intervened. The Minister was aware of these points, and while recognising that the benefits demonstrated by the RBCT might be regarded as “relatively modest” therefore, she also recognised how such results could be enhanced through application of a more comprehensive approach aimed at tackling all sources of infection together (which is the approach being adopted in Wales).

The 2010 Jenkins paper

50. On 22 September 2009, one of my colleagues, a Veterinary Advisor who has worked within the Welsh Assembly Government since June 2005, attended a meeting of the Epidemiology and Wildlife Risks Programme Advisory Sub-group (“EWRPAG”) at the Department for the Environment and Rural Affairs in London. EWRPAG is a sub-group of the Bovine Tuberculosis Science Advisory Body. The Welsh Assembly Government is not a member of this body or its sub-groups, but attends meetings in an observer capacity.

51. The meeting was attended Professor Christl Donnelly of Imperial College London. Professor Donnelly is part of the research team that produced the 2008 Jenkins Paper. She made a presentation to the meeting about that research team's further follow-up analysis of the results of the RBCT. The text of the presentation was not made available to attendees.
52. The information presented by Professor Donnelly was to be submitted for publication in a scientific journal and was to be subject to peer review prior to any publication. In the light of this, and the fact that Professor Donnelly did not indicate that the information and analysis presented to the meeting was yet in its final form, it was considered that the information presented was potentially subject to change and should therefore be regarded as "work in progress". Much of the information presented to the Bovine Tuberculosis Science Advisory Body sub-groups is of a similar nature.
53. The minutes of the meeting were not released until 6 October 2009 [CG1, pp 466-474].
54. The view was taken that it was not necessary to draw the information presented at the meeting on 22 September 2009 to the Minister's attention before she made the Order. This was because it was at that stage "work in progress" and potentially subject to revision, and it was to be subject to peer review during the publication process, after which it would be reported in greater detail. It was also because, for the reasons explained below, it was not considered materially to add to the information that had already been provided to the Minister.

55. In February 2010, the Jenkins research team produced a further paper concerning their further follow-up analysis of the results of the RBCT [CG1, pp 495-465]. This paper includes additional information that was not presented to the meeting on 22 September 2009 (for example, the economic analysis).

56. I, in conjunction with other officials, have considered this paper in some detail. Our view is that the information provided by the 2010 Jenkins paper differs little from that provided by the 2008 Jenkins paper. For example, the conclusion that proactive culling (without other complementary measures) results in only a “modest” overall reduction in cattle herd breakdowns is common to both the 2008 Jenkins paper and the Final Report of the Independent Scientific Group on Cattle Tuberculosis published in 2007 (to which I have already referred in paragraph 17 above).

	Estimated effects of proactive culling on the incidence of confirmed cattle TB breakdowns inside trial areas	Estimated effects of proactive culling on the incidence of confirmed cattle TB breakdowns up to 2 km outside the trial area boundaries
Jenkins et al, 2008 (1 st cull to 6 January 2008)	-30.2% (95% Confidence Interval -38.1 to -21.3%)	12.5% (95% Confidence Interval -8.5 to 38.3%)
Jenkins et al, 2010 (1 st cull to 42 months after cessation of culling)	-28.7% (95% Confidence Interval -35.8 to -20.8%)	11.7% (95% Confidence Interval -12.9 to 43.2%)

57. The Minister has been briefed on the 2010 Jenkins paper and I have discussed it with her. It has not caused her to alter her views.

Bern Convention

58. I understand that the Claimant has alleged that the decision to make the Order gives rise to a breach of the 1979 Convention on the Conservation of European Wildlife and Natural Habitats, otherwise known as the Bern Convention.
59. My submission of 23 March 2009 expressly referred the Minister to the Bern Convention. Also, my 22 September 2009 submission drew the Minister's attention to the need to report any culling to the Standing Committee of the Bern Convention.
60. The Minister has informed me that United Kingdom's obligations under the Bern Convention were a matter that she took into account when reaching her decision to make the Order. She took the view that the exception in article 9 of the Bern Convention applied, in that the culling of badgers would prevent serious damage to livestock and would be in the interests of public health, and there was no other satisfactory solution. She took the view that the culling of badgers would not be detrimental to the survival of the population concerned, in that it is not envisaged that culling will be carried out to such a degree as to risk the survival of the badger population in the United Kingdom, in Wales, or even in the area of culling itself.

Decision to implement a cull pursuant to the Order

61. On 13 January 2010, the Minister took a decision that, pursuant to the Order, a cull of badgers should commence in an "Intensive Action Pilot Area" located in (mainly) north Pembrokeshire [CG1, pp 475-478]. The intention is that this cull will start in May 2010, after the end of the current breeding season for badgers, and will be

carried out annually over a five year period. It will be co-ordinated and managed by the Welsh Assembly Government. The intention is that the cull will be carried out by the trapping and shooting of badgers. This is currently considered to be the most humane method of culling badgers.

62. Various steps have been taken to implement the cull. For example, contracts for surveying and mapping, containment and dispatch, disposal, population assessment, audit and evaluation and training have already been entered into (or are to be entered into in the very near future). A contract for traps is due to be awarded soon.
63. Additional cattle measures for the area have been agreed and are being implemented, with the vast majority of cattle keepers in the area having been visited by their private veterinary surgeon to assess their biosecurity risks and to recommend specific actions that they can take to mitigate these risks. Cattle keepers in the areas are co-operating with this work, despite the fact that it is placing additional burdens on them.

Other matters

64. In the letter before claim sent by the Claimant's solicitors on 30 October 2009 (see pp 31-41 of tab C of the Claimant's bundles), they make various allegations as to statements made by individuals, including myself.
65. In paragraph 14 of the letter, the Claimant's solicitors refer to a press report quoting me as having said "if we are ultimately successful we won't be able to say for sure whether it is the cull or our other actions that did it". In July 2009, I gave an interview to *The Tivy-Side Advertiser* on the subject of the Welsh tuberculosis eradication

programme. The quotation cited is an oversimplification of what I said in that interview. I explained that when applying a range of disease control measures simultaneously as part of a comprehensive approach aimed at tackling all sources of infection, it is technically impossible to attribute exact cause and effect to each individual intervention. I did not, and certainly did not intend to, suggest that the culling of badgers was not necessary.

66. In paragraph 17 of the letter, the Claimants' solicitors refer to a statement in the *Farmers' Guardian* by "the Minister's own Head Researcher from FERA, Dr McDonald". It is important to clarify the exact position of Dr McDonald. He is not "the Minister's own Head Researcher", he is in fact the Head of the Wildlife and Emerging Diseases Programme of the Food and Environment Research Agency in Gloucestershire. He contributed to the information considered by the Programme Board. I wrote to Dr McDonald concerning the article, and his reply is at [CG1, p 479]. In summary, Dr McDonald points out that he has not expressed any views on the proposed cull in Wales and he has not advocated vaccination as an alternative to culling.

I believe that the facts stated in this witness statement are true

Signed 
Christianne Glossop

Dated 

APPENDIX: THE COMPREHENSIVE APPROACH IN WALES

Activities in 2008:

- Minister for Rural Affairs announced a comprehensive programme of action to tackle bovine tuberculosis in April.
- At the outset, a governance structure was established to ensure accountability, stakeholder engagement, access to appropriate evidence and advice, and a clear decision making process.
- Consultation on the Tuberculosis (Testing and Powers of Entry) (Wales) Order 2008 ended in June.
- Local ownership has been encouraged by setting up in September three regional bovine TB Eradication Delivery Boards to integrate delivery organisations and local farming and veterinary representatives.
- Final report on the Intensive Treatment Area (ITA) biosecurity initiative published in September.
- Health Check Wales (HCW), an initiative to test all cattle herds in Wales for bovine TB, started in October. The aim of HCW was to provide an accurate picture of the disease across the country.
- Tuberculosis (Testing and Powers of Entry) (Wales) Order 2008 came into force.
- Consultation on a Framework for Preventing and Managing Incidents of Bovine TB in camelids in Wales ended in November.
- Inconclusive reactor policy was changed voluntarily in December, to remove potentially infected animals sooner and to be in line with European legislation.

Activities in 2009:

- Compulsory change in the inconclusive reactor policy in March, to remove potentially infected animals sooner and to be in line with European legislation.
- The target for the time taken for Animal Health to remove reactor cattle from farm to slaughter was reduced in April from 20 to 10 working day.
- Consultation on bovine tuberculosis compensation arrangements ends.
- Evidence used by the Minister for Rural Affairs in announcing her intention, subject to consultation, to implement a Government-managed non-selective cull of badgers made available on the bovine TB pages of the Welsh Assembly Government website in May 2009.
- The North Wales Regional Eradication Delivery Board launched a project in June to promote and raise standards of farm biosecurity by the provision of specialist advice to farms from their local private veterinarian.
- Industry and public communications have been improved, e.g. through attendance at agricultural shows, use of industry and government magazines and the internet, as has education as to the facts surrounding bovine tuberculosis;
- Enforcement protocols were developed and agreed with Animal Health and local authorities for implementation from June.
- Consultation on the proposed Tuberculosis Eradication (Wales) Order 2009 under the Animal Health Act 1981 ended in July.
- Improved compensation administrative processes, e.g. automatic justification thresholds and introduction of monitor valuers (professionals who monitor the

individual valuation of cattle on behalf of the Welsh Assembly Government to ensure that valuations are appropriate and follow market trends).

- Minister for Rural Affairs announced that all cattle herds in Wales would be on annual testing for 2010.
- Tuberculosis Eradication (Wales) Order 2009 under the Animal Health Act 1981 came into force in October.
- Contractual arrangements with slaughter houses continued to be improved.
- Attempt in November to annul the Tuberculosis Eradication (Wales) Order 2009 under the Animal Health Act 1981 defeated in Senedd by 43 votes to 9.
- A Tuberculosis Eradication plan for the UK in conjunction with England, Scotland and Northern Ireland was approved by the European Commission in December.
- A survey (via post-mortem examination) of tuberculosis in wild and park deer started in November.
- Health Check Wales was completed in December, with the accelerated testing regime identifying and removing sources of disease more quickly.
- Ecological Impact Assessment (EcIA) and a Habitats Directive Assessment (Screening Report) to assess the potential ecological impacts of badger control in a pilot area completed in December.
- Informal surveillance (via post-mortem examination) of tuberculosis in Snowdonia feral goats started in December.
- Improved compensation administrative processes e.g. automatic justification thresholds and introduction of monitor valuers.

Activities in 2010:

- The number of overdue tests has been reduced significantly from 711 (as of October 2008) to 1 (as of January 2010). Cattle handling equipment has been brought in to deal with difficult cases.
- Memorandum of Understanding (MoU) and Cost Recovery Agreement agreed with Dyfed-Powys Police for pilot area agreed in January.
- In January a new gamma interferon (g-IFN) testing policy was introduced for North Wales to continue to identify and remove infection quickly.
- Pre-movement testing for bovine TB was introduced across Wales from January.
- The Cardiff Regional Eradication Delivery Board stated a project in January on Gower to improve farming practices and reduce bovine TB risks with a best-practice day and commoners meeting.
- Consultation on the Tuberculosis and Brucellosis (Wales) Order 2010 ended in February.
- Evidence used by the Minister for Rural Affairs in announcing the establishment of a pilot area in the North Pembrokeshire area in January, aimed at dealing with bovine TB in both cattle and badgers, was made available on the bovine TB pages of the Welsh Assembly Government website.
- Prosecutions have been undertaken by the Welsh Assembly Government and local authorities where necessary to ensure compliance with the legislative requirements.

What is ongoing:

- Cattle surveillance levels in Wales have been increased, primarily on veterinary advice, by approximately 30% so that all Welsh cattle herds are planned to be tested for 2010.

- Results from the survey of tuberculosis in wild and park deer, and also in Snowdonia feral goats due.
- Working group to be set up to examine options for making best use of a badger vaccine for tuberculosis in Wales.
- Increased and improved engagement with private veterinary surgeons.
- A new Tuberculosis and Brucellosis (Wales) Order 2010 is being developed (following a consultation which ended on 1 February 2010) to allow the introduction of, amongst other things, a strengthening of pre-movement testing policy and align the payment of compensation for bovine TB cattle (reactors) with the behaviour of keepers, therefore penalising inappropriate and illegal activities.
- Improved husbandry and biosecurity practices continue to be promoted.
- A framework for dealing with bovine tuberculosis in camelids (such as llamas and alpacas) is being developed.

What is planned for the future:

- Gain agreement of a 2011 Eradication Plan by the European Commission.
- Decision on the application of a badger vaccine in Wales.
- Develop legislation (following consultation) on tuberculosis in non-bovines.
- Develop definition of areas for testing purposes to consider a risk-based approach to testing and cattle movements in Wales.
- Publicly reporting an overview of bovine TB compensation payments on an annual basis.
- Streamlining of the removal of reactors and slaughter process (tender exercise for this ends in March 2010).
- Develop a process for sharing bovine TB information on herd restrictions across industry to allow them to take appropriate precautions (i.e. between neighbouring holdings, etc).