UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

Confidence Building Measure Return for 2010 (covering data for 2009) for the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and their Destruction, 10 April 1972

Submitted to the United Nations on 6 April 2010

DECLARATION FORM ON NOTHING TO DECLARE OR NOTHING NEW TO DECLARE FOR USE IN THE INFORMATION EXCHANGE

Measure	Nothing to declare	Nothing new to declare
A, part I		
A, part 2 (i)		
A, part 2 (ii)		
A, part 2 (iii)		
B (i)		
B (ii)		
C		
D		
E		
F		√
G		

(Please mark the appropriate box (es) for each measure, with a tick.)

Date: 6 April 2010

State Party to the Convention: United Kingdom of Great Britain and Northern Ireland

Form A Part 1

Exchange of data on research centres and laboratories[1]

1.	**Names(s) of facility[2]**	Defence Science and Technology Laboratory (Dstl), Porton Down. *Declared in accordance with Form A Part 2(iii)*
2.	**Responsible public or private organisation or company**	Ministry of Defence
3.	**Location and postal address**	Dstl Porton Down Salisbury Wiltshire SP4 0JQ

4. **Source(s) of financing of the reported activity, including indication if the activity is wholly or partly financed by the Ministry of Defence**

   Largely financed by the MOD.

5. **Number of maximum containment units[3] within the research centre and/or laboratory, with an indication of their respective size (m^2)**

   2 BL4 labs, 256 m^2 total

6. **If no maximum containment unit, indicate highest level of protection**

   Not applicable

7. **Scope and general description of activities, including type(s) of micro-organisms and/or toxins as appropriate**

   Research and development into protective measures as defence against the hostile use of micro-organisms and toxins.

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[1] The containment units which are fixed patient treatment modules, integrated with laboratories, should be identified separately

[2] For facilities with maximum containment units participating in the national biological defence research and development program, please fill in name of facility and mark "Declared in accordance with Form A, Part 2(iii)".

[3] In accordance with the 1983 WHO Laboratory Biosafety Manual, or equivalent

Form A Part 1

Exchange of data on research centres and laboratories[1]

1.	**Name(s) of facility[2]**	Health Protection Agency, Colindale
2.	**Responsible public or private organization or company**	Health Protection Agency (a non-departmental public body of the UK Department of Health)
3.	**Location and postal address**	61 Colindale Avenue London NW9 5HT

4. Source(s) of financing of the reported activity, including indication if the activity is wholly or partly financed by the Ministry of Defence

The Department of Health funds this activity as part of its finance of the Health Protection Agency's Centre for Infections at Colindale, London NW9

5. Number of maximum containment units[3] within the research centre and/or laboratory, with an indication of their respective size (m^2)

1 high containment unit: 30 m^2

6. If no maximum containment unit, indicate highest level of protection

Not applicable

7. Scope and general description of activities, including type(s) of micro-organisms and/or toxins as appropriate

Laboratory is used to provide diagnostic services for Herpes B; viral haemorrhagic fever infections: Lassa fever, Ebola, Marburg, Congo-Crimean haemorrhagic fever; avian influenza and SARS. To support diagnostic services a programme of applied diagnostic research and development is conducted**.**

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[1] The containment units which are fixed patient treatment modules, integrated with laboratories, should be identified separately

[2] For facilities with maximum containment units participating in the national biological defence research and development program, please fill in name of facility and mark "Declared in accordance with Form A, Part 2(iii)".

[3] In accordance with the 1983 WHO Laboratory Biosafety Manual, or equivalent

Form A Part 1

Exchange of data on research centres and laboratories[1]

1.	**Name(s) of facility[2]**	Health Protection Agency, Centre for Emergency Preparedness and Response, Porton Down
2.	**Responsible public or private organization or company**	Health Protection Agency (a non-Department public body of the UK Department of Health)
3.	**Location and postal address**	Porton Down Salisbury Wiltshire SP4 0JG

4. Source(s) of financing of the reported activity, including indication if the activity is wholly or partly financed by the Ministry of Defence

The Department of Health funds this activity as part of its finance of the Health Protection Agency's Centre for Emergency Preparedness and Response at Porton Down.

5. Number of maximum containment units[3] within the research centre and/or laboratory, with an indication of their respective size (m^2)

2 units: 59 m^2; 46 m^2

6. If no maximum containment unit, indicate highest level of protection

Not applicable

7. Scope and general description of activities, including type(s) of micro-organisms and/or toxins as appropriate

Diagnosis and research into various containment level 4 viruses including Lassa, Ebola, Marburg and other haemorrhagic fever viruses.

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[1] The containment units which are fixed patient treatment modules, integrated with laboratories, should be identified separately

[2] For facilities with maximum containment units participating in the national biological defence research and development program, please fill in name of facility and mark "Declared in accordance with Form A, Part 2(iii)".

[3] In accordance with the 1983 WHO Laboratory Biosafety Manual, or equivalent

Form A Part 1

Exchange of data on research centres and laboratories[1]

1.	**Name(s) of facility**[2]	National Institute for Biological Standards and Control
2.	**Responsible public or private organisation or company**	Non-departmental public body of the UK Department of Health
3.	**Location and postal address**	Blanche Lane South Mimms Potters Bar Herts EN6 3QG

4. Source(s) of financing of the reported activity, including indication if the activity is wholly or partly financed by the Ministry of Defence

UK Government (Department of Health and the Home Office)

5. Number of maximum containment units[3] **within the research centre and/or laboratory, with an indication of their respective size (m^2)**

Two containment level 4 units, each of 59 m^2

6. If no maximum containment unit, indicate highest level of protection

Not applicable

7. Scope and general description of activities, including type(s) of micro-organisms and/or toxins as appropriate

Highly pathogenic influenza virus – reagent development
Bacillus anthracis – vaccine testing, reagent development, development of in vitro assays to detect anthrax toxin neutralising antibodies
Yersinia pestis – molecular structural work
Botulinum toxins (serotypes A-G) - control, standardisation and assay development for vaccines and anti-toxins

In general, the activities are related to development of assays and testing of reagents.

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[1] The containment units which are fixed patient treatment modules, integrated with laboratories, should be identified separately
[2] For facilities with maximum containment units participating in the national biological defence research and development program, please fill in name of facility and mark "Declared in accordance with Form A, Part 2(iii)".
[3] In accordance with the 1983 WHO Laboratory Biosafety Manual, or equivalent

Form A Part 1

Exchange of data on research centres and laboratories[1]

1.	**Name(s) of facility**[2]	NIMR Containment 4 Building C
2.	**Responsible public or private organisation or company**	National Institute for Medical Research
3.	**Location and postal address**	The Ridgeway Mill Hill London NW7 1AA

4. Source(s) of financing of the reported activity, including indication if the activity is wholly or partly financed by the Ministry of Defence

Medical Research Council

5. Number of maximum containment units[3] **within the research centre and/or laboratory, with an indication of their respective size (m^2)**

1 BL4 containment unit of 333.2 m^2

6. If no maximum containment unit, indicate highest level of protection

Not applicable

7. Scope and general description of activities, including type(s) of micro-organisms and/or toxins as appropriate

Research and diagnostics on highly pathogenic avian influenza virus

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[1] The containment units which are fixed patient treatment modules, integrated with laboratories, should be identified separately

[2] For facilities with maximum containment units participating in the national biological defence research and development program, please fill in name of facility and mark "Declared in accordance with Form A, Part 2(iii)".

[3] In accordance with the 1983 WHO Laboratory Biosafety Manual, or equivalent

Form A Part 1

Exchange of data on research centres and laboratories[1]

1.	**Name(s) of facility**[2]	Institute for Animal Health, Pirbright Laboratory
2.	**Responsible public or private Organisation or company**	Biotechnology and Biological Sciences Research Council (BBSRC)
3.	**Location and postal address**	Institute for Animal Health Pirbright Woking Surrey GU24 0NF

4. Source(s) of financing of the reported activity, including indication if the activity is wholly or partly financed by the Ministry of Defence

BBSRC, EU, Department for Environment, Food and Rural Affairs (Defra). (Not funded by the Ministry of Defence).

5. Number of maximum containment units[3] **within the research centre and/or laboratory, with an indication of their respective size (m^2)**

No ACDP* Level 4* containment
12 m^2 ACDP Level 3 containment
2,585 m^2 of SAPO** Level 4 ACDP2 laboratory space
3,232 m^2 of SAPO4 ACDP2 animal accommodation

** Advisory Committee on Dangerous Pathogens*
*** Specified Animal Pathogens Order*

6. If no maximum containment unit, indicate highest level of protection

SAPO4 ACDP2 containment

7. Scope and general description of activities, including type(s) of micro-organisms and/or toxins as appropriate

Work on exotic animal virus disease: Foot and mouth disease, bluetongue, swine vesicular disease, African Horse Sickness, Capripox, African Swine Fever, PPR and rinderpest.

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[1] The containment units which are fixed patient treatment modules, integrated with laboratories, should be identified separately

[2] For facilities with maximum containment units participating in the national biological defence research and development program, please fill in name of facility and mark "Declared in accordance with Form A, Part 2(iii)".

[3] In accordance with the 1983 WHO Laboratory Biosafety Manual, or equivalent

Form A Part 1

Exchange of data on research centres and laboratories[1]

1.	**Name(s) of facility[2]**	Veterinary Laboratories Agency
2.	**Responsible public or private organisation or company**	Department for Environment, Food and Rural Affairs (Defra)
3.	**Location and postal address**	Woodham Lane Addlestone Surrey, KT15 3NB

4. Source(s) of financing of the reported activity, including indication if the activity is wholly or partly financed by the Ministry of Defence

Most funding is through Defra. None is funded by the Ministry of Defence.

5. Number of maximum containment units[3] within the research centre and/or laboratory, with an indication of their respective size (m^2)

SAPO* Level 4 (Defra)
3 x Avian Flu laboratories 1 = each 50 m^2
1 x Classical swine fever laboratory = 15 m^2
1 x Newcastle diseases virus laboratory = 50 m^2
1 x Rabies virus laboratory = 45 m^2
1 suite of Serology laboratories capable of increasing to SAPO level 4, but which usually run at ACDP level 2 = approximately 100 m^2.

* Specified Animal Pathogens Order

6. If no maximum containment unit, indicate highest level of protection

29 CL3 laboratories totalling 2,129 m^2
Advisory Committee on Dangerous Pathogens (ACDP) level 3. These laboratories cannot be operated at the higher level of containment.

7. Scope and general description of activities, including type(s) of micro-organisms and/or toxins as appropriate

Diagnosis and applied research on the epidemiology and pathology of the disease of farmed, domesticated livestock (cattle, sheep, pigs and poultry) and wild animal reservoirs. Bacteria and viruses in ACDP hazard groups 1-4, GM class 1-4 and SAPO groups 1-4.

[1] The containment units which are fixed patient treatment modules, integrated with laboratories, should be identified separately
[2] For facilities with maximum containment units participating in the national biological defence research and development program, please fill in name of facility and mark "Declared in accordance with Form A, Part 2(iii)".
[3] In accordance with the 1983 WHO Laboratory Biosafety Manual, or equivalent

Form A Part 1

Exchange of data on research centres and laboratories[1]

1.	**Name(s) of facility**[2]	Merial Animal Health, Pirbright Laboratory
2.	**Responsible public or private organization or company**	Merial Animal Health Ltd.
3.	**Location and postal address**	Ash Road Pirbright Surrey, GU24 ONQ

4. Source(s) of financing of the reported activity, including indication if the activity is wholly or partly financed by the Ministry of Defence

Private finance. (No Ministry of Defence funding)

5. Number of maximum containment units[3] **within the research centre and/or laboratory, with an indication of their respective size (m^2)**

1 x SAPO 4

6. If no maximum containment unit, indicate highest level of protection

Defra/HSE SAPO 4

7. Scope and general description of activities, including type(s) of micro-organisms and/or toxins as appropriate

Production of inactivated FMD and Bluetongue vaccines for protection of animals

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[1] The containment units which are fixed patient treatment modules, integrated with laboratories, should be identified separately

[2] For facilities with maximum containment units participating in the national biological defence research and development program, please fill in name of facility and mark "Declared in accordance with Form A, Part 2(iii)".

[3] In accordance with the 1983 WHO Laboratory Biosafety Manual, or equivalent

Form A, Part 2 (i)

National Biological Defence Research and Development Programme Declaration

1. **Is there a national programme to conduct biological defence research and development within the territory of the State Party, under its jurisdiction or control anywhere? Activities of such a program would include prophylaxis, studies on pathogenicity and virulence, diagnostic techniques, aerobiology, detection, treatment, toxinology, physical protection, decontamination and other related research.**

Yes

If the answer to (1) is Yes, complete Form A, Part 2 (ii) which will provide a description of the program.

Two Forms A, Part 2 (ii) are provided detailing programmes funded by the Ministry of Defence at (a) and the Home Office at (b).

Form A, Part 2 (ii)

(a) National Biological Defence Research and Development Programme

Description

1. State the objectives and funding of the programme and summarize the principal research and development activities conducted in the programme. Areas to be addressed shall include: prophylaxis, studies on pathogenicity and virulence, diagnostic techniques, aerobiology, detection, treatment, toxinology, physical protection, decontamination and other related research.

The objectives of the UK MOD biological defence research and development programme reflect the Defence Strategic Guidance 2008 (DSG) and the Government's CBRN Defence Policy Framework document which underlines the UK's Policy aspiration to maintain our political and military freedom of action despite the presence, threat or use of biological, chemical or radiological agents.

The Vision of Defence Capability in this area has been defined as the delivery of cross Defence Lines of Development (DLoD), military capability to minimise the impact to operations of the CBRN threat, by managing risk and utilising a coherent basket of CBRN capabilities tailored to suit the context. The keys to success are the economies of resource and synergies that can be exploiting true cross DLoD capability development and Through Life Capability Management (TLCM). This will enable creative and innovative solutions to be delivered to mitigate clearly defined problems.

Hazard Assessment

CBRN Hazard Assessment maintains the ability to provide an effective assessment of the current and developing CBRN hazard and is thus the bedrock on which sound CBRN defence is built. It requires the evaluation of the range of potential biological and toxin agents that might be utilised by a potential aggressor. The information generated helps define defence strategy, concepts and doctrine, as well as identifying the required performance of protective equipment. Therefore Hazard Assessment is an essential enabler to the CBRN capability.

The studies undertaken necessarily involve activities such as consideration of the agents' potency and dissemination characteristics, their aerobiology and the way in which they might be utilised by an aggressor in military and terrorist scenarios. This includes the potential impacts of genomics and proteomics. This work is essential to determine the challenge levels against which detectors, protective equipment and countermeasures must be effective. Current work includes studying the inhalation toxicity of a range of materials and the aerosol survival of pathogenic bacteria and viruses.

Detection and diagnostics

The ability to detect the presence or release of BTW agents across the battlespace is crucial in providing timely warning to military personnel to allow them to adopt the appropriate protective posture and avoid casualties. In 2009 work has focussed on technologies for improved sample collection, non-specific detection (to detect particulate material), generic detection (to distinguish between biological and non-biological materials) and specific identification (to identify the material). The objective is to develop point detection systems that are man portable and impose less logistic burden than current systems.

The Portable Integrated Battlespace Biological Detection Technology is now being developed by industry. Technology options to provide area surveillance for BTW using stand-off detection based on LIDAR technology or networks of point sensors has continued.

Technologies for the specific identification of BTW currently rely on the use of Biological Recognition Elements, such as antibodies and gene probes. The research programme has continued to develop specific antibodies - recombinant, monoclonal and polyclonal – to extend the range of potential BTW agents that can be identified. Testing is conducted in the laboratory by assessing the binding of the BTW agent to the generally immobilised antibody, monitored either through a linked colour change (e.g. Dipsticks) or electronically (biosensors).

Gene probe-based technology offers highly sensitive and specific assays for the identification of BTW agents like bacteria and viruses. Work is continuing in order to accelerate and simplify the methodology thus rendering it suitable for military use. Rapid PCR systems have been developed so that this technology can be used in field situations. In addition, similar technologies are also being investigated for use in medical diagnostic systems.

The research programme has continued to assess whether biological mass spectrometry technology could offer unambiguous detection and identification of BTW agents with a significant reduction in whole life costs.

Protection

The dissemination of BTW agents by an aggressor is likely to result in the production of particulate aerosols. Effective individual and collective protection (COLPRO) requires the prevention of the inhalation of this particulate challenge or its contact with the skin of personnel. Individual Protective Equipment (IPE) consists of a respirator and suit while collective protection systems provide isolation from a BW agent challenge in the form of whole buildings, rooms, ships or vehicles.

Current research focuses on providing IPE with effective levels of protection but with significantly reduced physiological loading compared with in-service equipment. This involves the development of new materials, integrating the materials into protective suit ensembles, and assessing the performance of the ensembles using non-pathogenic micro-organisms.

COLPRO research aims to design systems that provide the required levels of protection but pose a lower logistical burden on the user. This includes assessing the potential of Commercial off the Shelf (COTS) systems to meet the requirements of UK Armed Forces, including Rapid strike, Light weight and low power requirement as well as incorporating protection into general purpose tentage.

Medical Countermeasures

The Medical Countermeasures (MedCM) programme seeks to determine the efficacy of vaccines, antibiotics, antivirals and antitoxins for the prevention of disease caused by BW agents.

The current suite of in-service MedCM offers a capability which does not protect against all BW agents. In some cases, no licensed MedCM are available and in others the in-service provision provides protection against lethality but not incapacitation. Opportunities for using COTS MedCM are extremely limited. Where no COTS solutions exist, and there is a realistic prospect of identifying feasible candidate MedCM, additional research has been performed to establish ‘proof-of-principle’ for potential interventions. Before COTS products or other medical interventions can be recommended, evidence base for their use in the treatment of personnel exposed to CBR agents has been assessed.

Programmes have continued to devise vaccines against tularemia (caused by *Francisella tularensis*) and melioidosis/glanders (caused by *Burkholderia pseudomallei / mallei*). In the case of *Francisella tularensis* a programme is continuing to assess Lipopolysaccharide subunit vaccines in collaboration with academia and Industry. For *Burkholderia pseudomallei / mallei* the focus is to devise a sub-unit vaccine. Polysaccharides and proteins are currently being evaluated to test the optimal combination. Attenuated mutants of *Burkholderia pseudomallei* are not considered to be good vaccine candidates but are valuable for investigating the nature of the protective immune response. These vaccines will be tested using inhalation challenge models of disease.

Assessment of candidate anti-toxins against ricin, botulinum and SEB has continued, assessing efficacy, safety and acceptability.

The programme to explore the development of broad-spectrum BW countermeasures has continued, including therapies against *Brucella,* VEEV and Filoviruses. It has three broad elements: to investigate the up-regulation of the innate immune system, for example through immunomodulator stimulation; to determine whether there are cross-protective antigens or common mechanisms of virulence shared by different BW agents; and, to identify broad spectrum antimicrobials. Antibiotics and anti-virals which are newly emerging from industry are being tested to investigate whether they are effective against a wide range of candidate BW agents.

Projects to identify how animal models of disease can be replaced with in vitro assays, cell or organ culture systems are continuing.

Hazard Management

The ability to decontaminate personnel, materiel and infrastructure once an aggressor has dispersed BTW agents is a key element to hazard management and restoring operational tempo. Research aims to develop low logistic burden approaches for decontamination of BTW agents based on liquid formulations, strippable coatings, and reactive gases. Validated test methodologies for determining the efficacy of these decontamination processes are also being developed in parallel.

Arms Control

Dstl staff at Porton Down provide technical advice on CBW non-proliferation to the Ministry of Defence and the Foreign and Commonwealth Office as well as to other Government Departments involved in formulating and implementing UK policy on non-proliferation matters. This has included working towards and participating in: the Review Conferences of the BTWC; the Ad Hoc Group of Governmental experts tasked with identifying and examining potential verification measures; the Special Conference of States Parties held in September 1994; the BTWC Ad Hoc Group; and, the annual Meetings of Technical Experts and of States Parties during the intersessional programmes of work following the 5th and 6th Review Conferences.

Dstl staff assist in collating data for the UK Confidence Building Measures returns and provide technical advice towards the formulation and execution of policy on export control legislation, covering items related to biological weapons proliferation in foreign countries.

Dstl staff also assist the Department of Energy and Climate Change (DECC) in its role as the UK National Authority for the Chemical Weapons Convention, providing technical support over declarations, licensing, and inspections. Dstl operates the UK's Single Small Scale Facility at Porton Down, which has been declared under the CWC.

Dstl staff are also involved in the Ministry of Defence Arms Control and Counter-Proliferation Policy Division's non-proliferation programme which seeks to promote safe, secure and responsible application of dual use biological science internationally.

2. **State the total funding for the program and its source.**

The UK national biological defence research and development programme is concerned with the provision of effective measures for the UK and its Armed Forces against the threat that chemical and biological weapons may be used against them. The total UK expenditure on research and development on biological defence for the protection of the UK and its armed forces against micro-organisms and toxins in the fiscal year, April 1st 2009 - March 31st 2010, is forecast to be £47M. This includes £12.9M for work as project support to the procurement of armed forces biological defence equipment.

3. **Are aspects of this program conducted under contract with industry, academic institutions, or in other non-defence facilities?**

Yes.

4. **If yes, what proportion of the total funds for the program is expended in these contracted or other facilities?**

During the fiscal year April 1st 2009 to March 31st 2010, a total of 76 extramural contracts were placed. Of these 36 extramural contracts on research and development aspects relating to biological defence were in place with universities and other academic institutions, and 40 extramural contracts with other bodies, which are either government funded or industrial companies. Funding for these extramural contracts during the fiscal year totalled approximately £7.7M. This represents 16% of the total UK expenditure in the fiscal year on research and development on biological defence. The duration of individual contracts varies from a few months to three or four years, and in a few cases they include periods of work at Dstl. The precise institutions and companies are constantly varying as they are selected according to the needs of the defence programme and the availability of the necessary specialist skills.

5. **Summarise the objectives and research areas of the program performed by contractors and in other facilities with the funds identified under para 4.**

Contracts are let on specific research topics in support of the main research programme carried out at Dstl.

6. **Provide a diagram of the organisational structure of the program and the reporting relationships (include individual facilities participating in the program).**

Policy for biological and chemical defence is determined by the Ministry of Defence with the Director of Chemical, Biological, Radiological and Nuclear Policy (CBRN Pol) as the focus. The Arms Control and Counter-Proliferation Policy (ACP) Division determines MOD policy on CB arms control. The goals and individual objectives of the research programme are determined by the Ministry of Defence (MOD), with the Programme Leader CBRN (PL CBRN) within the Defence Technology & Innovation Centre (DTIC) of the MOD Science Innovation and Technology (SIT) branch being responsible for managing the planning, contracting and delivery of the research programme. The Director Equipment Capability CBRN (DEC CBRN) is responsible for the development of CBRN Defence capability and is the customer focus for the output from the research programme. Acquisition of tri-service CBRN protective equipment is carried out by the CBRN Integrated Project Team (CBRN IPT) and the Medical and General Supplies IPT is responsible for the acquisition of CBRN medical countermeasures. Research at

Dstl, Porton Down, is undertaken in response to the requirements of these customers within MOD, and Dstl provides technical and policy advice as appropriate.

7. **Provide a declaration in accordance with Form A Part 2 (iii) for each facility, both governmental and non-governmental, which has a substantial proportion of its resources devoted to the national biological research and development program, within the territory of the reporting State, or under its jurisdiction or control anywhere.**

The only UK facility which has a substantial proportion of its resources devoted to the national biological defence research and development programme is Dstl, for which a declaration is made on Form A Part 2(iii).

(b) National biological defence research and development programme

Description

1. State the objectives and funding of the programme and summarize the principal research and development activities conducted in the programme. Areas to be addressed shall include: prophylaxis, studies on pathogenicity and virulence, diagnostic techniques, aerobiology, detection, treatment, toxinology, physical protection, decontamination and other related research.

The Home Office programme is aimed at enhancing the UK's capability to minimise the risk of a CBRN terrorist incident.

2. State the total funding for the programme and its source.

£5.0M – Home Office funding

3. Are aspects of this programme conducted under contract with industry, academic institutions, or in other non-defence facilities?

Yes

4. If yes, what proportion of the total funds for the programme is expended in these contracted or other facilities?

80%

5. Summarize the objectives and research areas of the programme performed by contractors and in other facilities with the funds identified under paragraph 4.

The work is aimed at:

- Detection and analysis of biological materials
- Medical countermeasures to biological agents
- Development and assessment of protective equipment against biological materials
- Hazard assessment and decontamination of biological agents
- Developing an understanding of the impact and spread of biological materials

6. Provide a diagram of the organizational structure of the programme and the reporting relationships (include individual facilities participating in the programme).

Contractors report through controlling Government departments to the HO-led CBRN Delivery Board

7. Provide a declaration in accordance with Form A, part 2 (iii) for each facility, both governmental and non-governmental, which has a substantial proportion of its resources devoted to the national biological defence research and development programme, within the territory of the reporting State, or under its jurisdiction or control anywhere.

The only facility that falls into this category is Dstl, for which a declaration is made on Form A Part 2 (iii).

Form A Part 2 (iii)

National Biological Defence Research and Development Programme

Facilities

Complete on form for each facility declared in accordance with paragraph 7 in Form A Part 2 (ii).

In shared facilities, provide the following information for the biological defence research and development portion only.

1. **What is the name of the facility?**

Defence Science and Technology Laboratory, Porton Down.

2. **Where is it located (include both address and geographical location).**

Dstl,
Porton Down,
Salisbury,
Wiltshire,
SP4 0JQ

The geographical location is shown in the attached map (Figure 2). G13 Access Road, centre of south boundary, Latitude 50□ 07-N, Longitude 01□ 40-W.

3. **Floor area of laboratory areas by containment level:**

BL2 708 m^2)
) Biological defence research and development
BL3 1191 m^2) element
)
BL4 256 m^2)

4. **The organizational structure of each facility:**

The organisational structure of Dstl Porton Down is shown in Figure 1. The facility provides research for all aspects of defence, including CBRN. The total number of Dstl staff at Porton Down on 2nd March 2010 was 2076 civilians (1536 permanent and 540 temporary) and 17 military. The permanent staff fall into the following categories:

Scientists and Engineers	915
Science support staff	302
Administration staff	210
Administration support staff	109
TOTAL	1536
Military personnel	17

For the biological defence research and development element, the numbers are as follows:

I. Total number of personnel 226

II. Division of personnel

Civilian	216
Military	10

III. Division of civilian personnel by category:

Scientists and Engineers	174
Science support staff	15
Administration staff	24
Administration support staff	3

IV. **List the scientific disciplines represented in the scientific/engineering staff.**

Aerobiology, aerosol physics, mathematics, chemistry, chemical engineering, physics, bacteriology, biology, biophysics, bioinformatics, virology, genetics, immunology, medicine, veterinary science, microbiology, biochemistry, molecular biology, physiology, pharmacology, neuropharmacology, psychology, toxicology, engineering, electronics, ergonomics, hydrodynamics, information science, materials science, operational analysis, operational research, information technology, CB defence science.

V. **Are contractor staff working in the facility? If so, provide an approximate number.**

A small number of contractors work on the programme from time to time. Other contractor staff carry out building and maintenance work and some administrative functions.

VI. **What is (are) the source(s) of funding for the work conducted in the facility, including indication if activity is wholly or partly financed by the Ministry of Defence?**

Porton Down is one of the sites of the Defence Science and Technology Laboratory (Dstl), which is part of the Ministry of Defence. Some work, approximately 22%, is carried out for other governmental and commercial customers.

VII. **What are the funding levels for the following programme areas:**

Research	£33.3M
Development	£13.7M
Test and Evaluation	This is carried out as required to support research and development. Not separately funded in UK.

VIII. **Briefly describe the publication policy of the facility:**

Staff at Dstl are encouraged to publish their work in the scientific literature.

IX. **Provide a list of publicly available papers and reports resulting from the work during the previous 12 months. (To include authors, titles and full references).**

Attached as Annex.

5. **Briefly describe the biological defence work carried out at the facility, including type(s) of micro-organisms including viruses and prions and/or toxins studied, as well as outdoor studies of biological aerosols.**

The work of Dstl, Porton Down has been reported under Question 1 of Form A Part 2 (ii). Projects currently underway include:

a. The assessment of the hazard posed by micro-organisms and toxins when used by an aggressor as a BW.

b. Research into systems to facilitate collection, detection, warning, and identification of BW agents. This work includes the evaluation of collection and detection systems in outdoor studies using microbiological simulants and research into the composition of naturally occurring biological aerosols.

c. Research to establish the protection afforded by materials and CBRN defence equipment against BW agents. This work includes the evaluation of military equipment both in the laboratory and in outdoor studies using microbiological simulants.

d. Research into formulations and techniques for decontaminating microbiologically contaminated equipment using suitable simulants.

e. Rapid identification of micro-organisms and toxins by the use of monoclonal antibodies and gene probes.

f. Studies on the mechanism of action and treatment of toxins.

g. Therapies for bacterial and viral infections.

h. Studies on the mechanisms of pathogenicity of viruses and bacteria and the development of improved vaccines.

ANNEX to Form A Part 2(iii)

BIOLOGICAL DEFENCE RESEARCH PUBLICATIONS FOR Dstl PORTON DOWN 2009

Book Chapters

N. A. E. Hopkins. Chapter in "Recognition Receptors in Biosensors" Springer (In Press) ISBN: 978-1-4419-0918-3

Peer Reviewed Papers

MS Lever, M Nelson, AJ Stagg, RJ Beedham and AJ Simpson. Experimental acute respiratory *Burkholderia pseudomallei* infection in BALB/c mice. *International Journal of Experimental Pathology*. 90: 16-25, 2009.

JE Thwaite, TR Laws, TP Atkins and HS Atkins. Differential cell surface properties of vegetative *Bacillus*. *Letters in Applied Microbiology*. 48: 373-378, 2009.

L O'Brien, S Perkins, A Williams, L Eastaugh, A Phelps, J Wu and R Phillpotts. Alpha interferon as an adenovirus-vectored vaccine adjuvant and antiviral in Venezuelan equine encephalitis virus infection. *Journal of General Virology*. 90: 874-882, 2009.

RJ Thomas, D Webber, A Collinge, AJ Stagg, SC Bailey, A Nunez, A Gates, PN Jayasekera, RR Taylor, S Eley & RW Titball. Small and large particle inhalational plague shows different pathology but equal responsiveness to the rF1+rV vaccine or ciprofloxacin in the murine model of disease. *Infection & Immunity*. 77(4): 1315-1323, 2009.

M Nelson, MS Lever, VL Savage, FJ Salguero, PC Pearce, DJ Stevens & AJ Simpson. Establishment of lethal inhalational infection with *Francisella tularensis* (tularaemia) in the common marmoset (*Callithrix jacchus*). *International Journal of Experimental Pathol*ogy. 90:109-118, 2009.

MW Leckenby, AM Spear, BN Neeson, ED Williamson, RM Cranenburgh & HS Atkins. Enhanced vaccine antigen delivery by Salmonella using antibiotic-free operator–repressor titration-based plasmid stabilisation compared to chromosomal integration. *Microbial Pathogenesis*. 46: 201-206, 2009.

C Vernazza, B Lingard, HC Flick-Smith, LW Baillie, J Hill J and HS Atkins. Small protective fragments of the Yersinia pestis V antigen. *Vaccine*. 27(21): 2775-2780, 2009.

P Tippayawat, W Saenwongsa, J Mahawantung, D Suwannasaen, P Chetchotisakd, D Limmathurotsakul, SJ Peacock, PL Felgner, HS Atkins, RW Titball, GJ Bancroft and G Lertmemongkolchai. Phenotypic and Functional Characterization of Human Memory T Cell Responses to *Burkholderia pseudomallei*. *PLoS Neglected Tropical Diseases*. 3(4): 407, 2009.

A El-Shibiny, A Scott, A Timms, Y Metawea, P Connerton and I Connerton. Application of a Group II *Campylobacter* Bacteriophage To Reduce Strains of *Campylobacter jejuni* and *Campylobacter coli* Colonizing Broiler Chickens. *Journal of Food Protection*. 72: 733-740, 2009.

SJ Smither, SD Perkins, C Davies, AJ Stagg, M Nelson and HS Atkins. Development and Characterization of Mouse Models of Infection with Aerosolized *Brucella melitensis* and *Brucella suis*. *Clinical Vaccine Immunology*. 16(5): 779-783, 2009.

M Sarkar-Tyson, SJ Smither, SV Harding, TP Atkins and RW Titball. Protective efficacy of heat-inactivated *B. thailandensis*, *B. mallei* or *B. pseudomallei* against experimental melioidosis and glanders. *Vaccine.* 27 (33): 4447-4451, 2009

OL Champion, IA Cooper, SL James, D Ford, A Karlyshev, BW Wren, M Duffield, PC Oyston and RW Titball. *Galleria mellonella* as an alternative infection model for *Yersinia pseudotuberculosis*. *Microbiology*. 155: 1516-1522, 2009.

JE Thwaite, S Humphrey, MA Fox, VL Savage, TR Laws, DO Ulaeto, RW Titball and HS Atkins. The cationic peptide magainin II is antimicrobial for Burkholderia cepacia-complex strains. *Journal of Medical Microbiology*. 58(7): 923-929, 2009.

M Halling-Brown, R Shaban, D Frampton, CE Sansom, M Davies, D Flower, M Duffield, RW Titball, V Brusic and DS Moss. Proteins Accessible to Immune Surveillance Show Significant T-Cell Epitope Depletion : Implications for Vaccine Design. *Molecular Immunology*. 46(13): 2699-2705, 2009.

CH Logue, CF Bosio, T Welte, KM Keene, JP Ledermann, A Phillips, BJ Sheahan, DJ Pierro, N Marlenee, AC Brault, CM Bosio, AJ Singh, AM Powers and KE Olson. Virulence Variation Among Isolates of Western Equine Encephalitis Virus in an Outbred Mouse Model. *Journal of General Virology*. 90(8):1848-1858, 2009.

AJ Williams, LM O'Brien, RJ Phillpotts and SD Perkins. Improved Efficacy of a Gene Optimised Adenovirus-Based Vaccine for Venezuelan Equine Encephalitis Virus. *Virology Journal*. 6: 118, 2009.

JE Thwaite, S Humphrey, MA Fox, VL Savage, TR Laws, DO Ulaeto, RW Titball and HS Atkins. The Cationic Peptide Magainin II is Antimicrobial for *Burkholderia cepacia* Complex Strains. *Journal of Medical Microbiology*. 58: 923-929, 2009.

AM Spear, NJ Loman, HS Atkins and MJ Pallen. Microbial TIR domains: not necessarily agents of subversion? *Trends in Microbiology*. 17(9): 393-398, 2009.

DJ Kenny, AM Sefton, J Steward, TJ Brooks, AJ Simpson and HS Atkins. Efficacy of the quinolones trovafloxacin and grepafloxacin for therapy of experimental tularaemia and plague. *International Journal of Antimicrobial Agents*. 34(5): 502-503, 2009.

HS Atkins, S Spencer, SD Brew, TR Laws, RE Thirlwall, AP MacMillan, TJ Brooks and AJ Simpson. Efficacy of moxifloxacin or gatifloxacin as prophylaxis against experimental murine Brucella melitensis infection. *International Journal of Antimicrobial Agents.* 34(5): 471-473, 2009.

HS Atkins, S Spencer, SD Brew, DC Jenner, P Russell, AP MacMillan, SM Eley, AJ Simpson. Efficacy of ciprofloxacin versus doxycycline as prophylaxis against experimental murine Brucella melitensis infection. *International Journal of Antimicrobial Agents*. 34(5): 474-476, 2009.

J Hill, SE Leary, S Smither, J Hewer, A Best, S Weeks, J Pettersson, A Forsberg, B Lingard, KA Brown, A Lipka, ED Williamson and RW Titball. N255 is a key residue for recognition by a monoclonal antibody which protects against *Yersinia pestis* infection. *Vaccine*. 27: 7073-7079, 2009.

CJ Stubben , ML Duffield, IA Cooper, DC Ford, JD Gans, AC Karlyshev, B Lingard, PC Oyston, A de Rochefort A, J Song, BW Wren, RW Titball and M Wolinsky. Steps towards broad-

spectrum therapeutics : discovering virulence-associated genes present in diverse human pathogens. *BMC Genomics*. 10: 501, 2009

PC Oyston and R Griffiths. Francisella virulence : significant advances, ongoing challenges and unmet needs. *Expert Rev Vaccines*. 8(11): 1575-1585, 2009.

PC Oyston. Francisella tularensis vaccines. *Vaccine*. 27(4): D48-51, 2009.

ED Williamson. Plague. In : Vaccines for Biodefense, Supplement to Vaccine. *Vaccine*. 27 : D56-60, 2009.

LM O'Brien, CD Underwood-Fowler, SA Goodchild, AL Phelps and RJ Phillpotts. Development of a novel monoclonal antibody with reactivity to a wide range of Venezuelan equine encephalitis virus strains. *Virology Journal*. 6: 206, 2009.

James Nally, Tim Foat and Steve Preston. Refinement and Testing of the Drift-Flux Model for Indoor Aerosol Applications *Journal of Aerosol Science* (in Press)

Figure 1: Organizational Structure of Dstl Porton Down. (Departments contributing to the Biological Defence Programme are shown in grey)

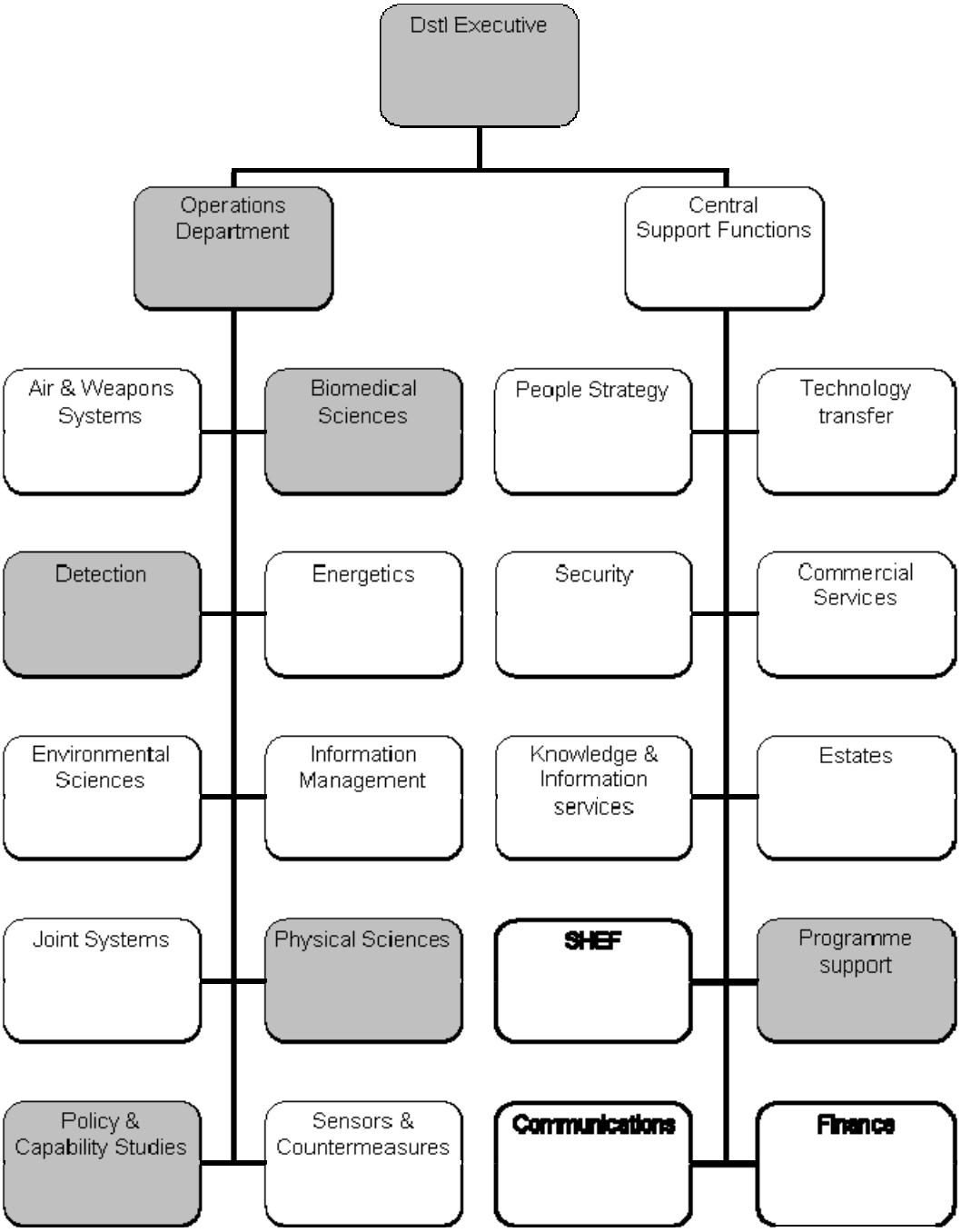
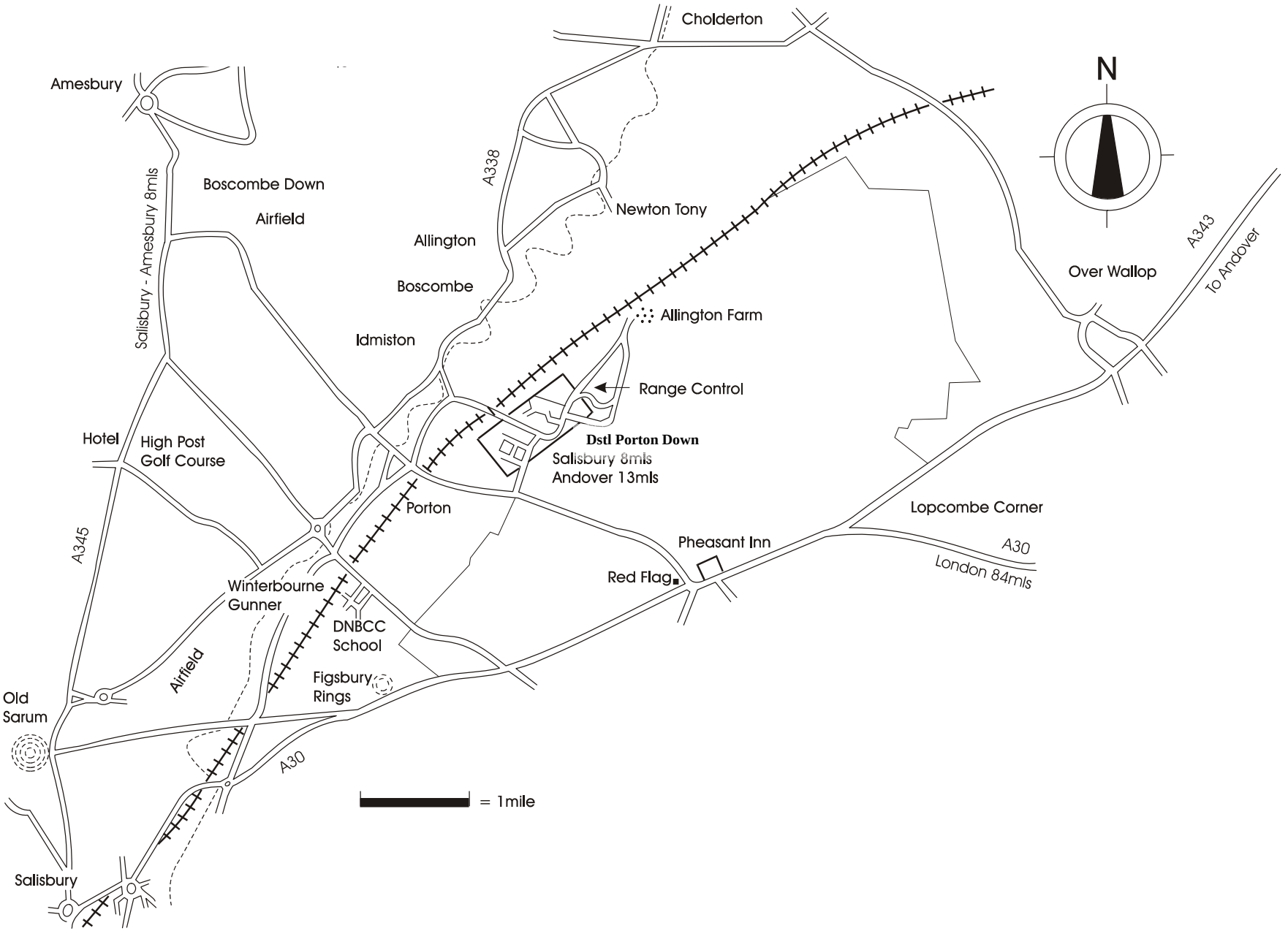


Figure 2: Routes to Dstl Porton Down



Form B(i)

Background information on outbreaks of reportable infectious diseases in humans - England and Wales

Data from Statutory Notifications of Infectious Diseases (England and Wales)

Disease	Number of cases per year				
	2005	**2006**	**2007**	**2008‡**	**2009†**
Acute encephalitis	19	19	18	24	16
Acute poliomyelitis	0	0	0	0	0
Anthrax	0	1	0	1	0
Cholera	34	37	41	40	35
Diphtheria**	9	10	9	6	11
Dysentery	1,237	1,122	1,217	1,166	1,212
Food poisoning	70,407	70,603	72,382	68,962	74,982
Leptospirosis	31	24	37	44	28
Malaria	679	613	426	386	381
Measles**	2,089	3,705	3,670	5,088	5,208
Meningitis	1,381	1,494	1,251	1,181	1,224
Meningococcal septicaemia	721	657	673	528	497
Mumps**	56,256	12,841	7,196	7,827	18,643
Ophthalmia neonatorum	87	100	83	77	90
Paratyphoid fever	119	185	126	170	126
Plague	0	0	0	0	0
Rabies	0	0	0	0	0
Relapsing fever	0	0	0	0	0
Rubella**	1,155	1,221	1,082	1,096	1,131
Scarlet fever	1,678	2,166	1,948	2,920	4,175
Smallpox	0	0	0	0	0
Tetanus	3	0	4	7	6
Tuberculosis	7,628	7,621	6,989	7,319	7,065
Typhoid fever	179	201	208	240	209
Typhus fever	1	6	0	4	0
Viral haemorrhagic fever	0	5	1	3	0
Viral hepatitis	4,109	4,007	3,857	4,756	4,987
Hepatitis A	513	433	333	378	379
Hepatitis B	1,325	1,165	1,265	1,592	1,611

Hepatitis C	2,120	2,194	2,040	2,533	2,700
Other and unknown	151	215	219	253	297
Whooping cough	594	550	1,089	1,512	1,152
Yellow fever	2	0	0	0	0

‡ Adjusted (confirmed) annual totals
† Provisional annual totals
** Note: In recent years a substantial proportion of notified cases of these diseases are shown subsequently not to be the implicated infection but do not get de-notified

Full information on Statutory Notifications of Infectious Diseases in England and Wales can be obtained via:

http://www.hpa.org.uk/webw/HPAweb&Page&HPAwebAutoListName/Page/1191942172956?p=1191942172956

http://www.hpa.org.uk/webw/HPAweb&Page&HPAwebAutoListNameDesc/Page/1233906822114?p=1233906822114

http://www.hpa.org.uk/HPA/Topics/InfectiousDiseases/InfectionsAZ/1234432673321/

http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1262704955094

Form B(i)

Background information on outbreaks of reportable infectious diseases in humans - Northern Ireland

Data from Statutory Notifications of Infectious Diseases (Northern Ireland).

Please note these figures are not classified as outbreaks and are only suspected cases reported by General Practitioners.

Disease	Number of cases per year				
	2005	2006	2007	2008	2009†
Acute Encephalitis/Meningitis:Bacterial	48	46	33	39	35
Acute Encephalitis/Meningitis:Viral	18	12	3	2	3
Anthrax	0	0	0	0	0
Chickenpox	3,227	3,034	2,823	1,941	2,649
Cholera	1	1	0	0	0
Diphtheria	0	0	0	1	0
Dysentery	7	7	10	16	13
Food Poisoning	1,409	1,469	1,321	1,267	1,436
Gastro-enteritis (persons under 2)	736	718	762	758	554
Hepatitis A	4	4	1	15	27
Hepatitis B	41	42	50	60	37
Hepatitis Unspecified:Viral	29	2	1	0	1
Legionnaires' Disease	6	5	10	5	11
Leptospirosis	1	1	1	0	0
Malaria	2	6	4	2	5
Measles	56	52	31	24	51
Meningococcal Septicaemia	66	75	42	33	50
Mumps	4,556	205	164	135	628
Paratyphoid Fever	0	0	0	1	0
Plague	0	0	0	0	0
Polio (paralytic)	0	0	0	0	0
Polio (acute)	0	0	0	0	0
Rabies	0	0	0	1	0
Relapsing Fever	0	0	0	0	0
Rubella	31	33	26	28	14
Scarlet Fever	186	213	214	173	205
Smallpox	0	0	0	0	0
Tetanus	0	0	0	0	0
Tuberculosis (Pulmonary)	37	34	44	28	47
Tuberculosis (Non Pulmonary)	31	14	19	29	10
Typhoid	1	1	3	0	0

Typhus	0	0	0	0	0
Viral Haemorrhagic Fever	0	0	0	0	0
Whooping Cough	28	28	16	30	25
Yellow Fever	0	0	0	0	0

† Provisional figures for 2009

Further information on Notifications of Infectious Diseases in Northern Ireland can be obtained via:
http://www.cdscni.org.uk/
http://www.cdscni.org.uk/surveillance/NOIDS/officedocs/NOIDS_Annual_Totals.xls
http://www.cdscni.org.uk/surveillance/NOIDS/Default.asp

Form B (i)

Background information on outbreaks of reportable infectious diseases in humans – Scotland

Data from Statutory Notification of Infectious Diseases, Scotland.

Disease	Number of cases per year				
	2005	2006	2007	2008*	2009**
Anthrax	0	1	0	0	1†
Dysentery	103	112	156	107	92
Cholera	6	3	8	3	6
Diphtheria	0	0	1	0	0
Food poisoning	6,918	7,335	7,186	7,625	8,691
Leptospirosis	5	2	2	6	1
Malaria	20	18	15	15	20
Measles	186	259	168	219	161
Meningococcal infection	139	140	150	120	124
Mumps	5,698	2,917	2,741	720	1,102
Paratyphoid fever	0	0	1	4	2
Plague	0	0	0	0	0
Rabies	0	0	0	0	0
Relapsing fever	0	0	0	0	0
Rubella	141	153	146	106	87
Scarlet fever	208	274	315	890	594
Smallpox	0	0	0	0	0
Tetanus	1	0	0	0	1
Tuberculosis	389	414	409	502	398
Typhoid fever	1	3	3	3	1
Typhus fever	0	0	0	0	0
Viral haemorrhagic fevers	0	0	0	0	1
Viral hepatitis***	1,002	1,235	1,397	1,684	1,371
Whooping cough	51	67	98	134	104

* *Confirmed figures*
** 2009 *Provisional figures*
*** It should be noted that the accuracy and comprehensiveness of viral hepatitis data is limited as it is based on notifications submitted by the National Health Service Boards. Notifications are a clinical suspicion of an infection and can differ from the number of laboratory confirmed cases. Health Protection Scotland (HPS), in association with hepatitis testing laboratories in Scotland, manages a laboratory based surveillance system, which generates accurate and comprehensive information on viral hepatitis, particularly that associated with Hepatitis C. The data generated from this surveillance system is published regularly on the HPS website: http://www.hps.scot.nhs.uk/.
† This figure is the number of cases *notified* by end 2009. Further details of the ongoing outbreak are given in Form B(ii).

Further information on Notifiable Infectious Diseases in Scotland can be obtained via:

http://www.hps.scot.nhs.uk/surveillance/NotifiableInfectiousDiseaseData.aspx
http://www.hps.scot.nhs.uk/publichealthact/annualdata.aspx
http://www.documents.hps.scot.nhs.uk/ewr/pdf2010/1002.pdf
http://www.documents.hps.scot.nhs.uk/ewr/pdf2010/1003.pdf

Form B(i)

Background information on outbreaks of reportable Infectious diseases in animals - United Kingdom*

Disease	Number of confirmed cases per year					
	2004	2005	2006	2007	2008	2009
African Horse Sickness						
African Swine Fever						
Anthrax			1			
Aujeszky's Disease		2	4		2	
Notifiable Avian Disease			3	5	2	
Bat Rabies	1		1	1	1	
Bluetongue				66	71	
Classical Swine Fever						
Contagious agalactia						
Contagious Bovine Pleuro-pneumonia						
Contagious Epididymitis (Brucella ovis)						
Contagious Equine Metritis Organism (CEMO)		1	1	1	2	2
Dourine						
Enzootic Bovine Leukosis						
Epizootic Haemorrhagic Virus Disease						
Epizootic Lymphangitis						
Equine Viral Arteritis	1					
Equine Viral Encephalomyelitis						
Equine Infectious Anaemia			1			
Foot and Mouth Disease				8		
Glanders and Farcy						
Goat Pox						
Lumpy Skin Disease						
Newcastle Disease		1	1			
Paramyxovirus of pigeons						
Pest des Petits Ruminants						
Rabies					1**	
Rift Valley Fever						
Rinderpest (Cattle plague)						
Scrapie						
Sheep pox						
Swine Vesicular Disease						
Teschen Disease (Porcine enterovirus encephalomyelitis)						
Vesicular Stomatitis						
Warble Fly						
West Nile Virus						

* This table shows confirmed cases of exotic notifiable disease investigations.
** Rabies case involved one imported dog held in quarantine.

Further information on disease investigations in Great Britain can be found at:
http://www.defra.gov.uk/foodfarm/farmanimal/diseases/atoz/ndi/index.htm

Full information on all notifiable animal diseases in Great Britain can be obtained via:
http://www.defra.gov.uk/foodfarm/farmanimal/diseases/atoz/notifiable.htm

and UK reports to the World Organisation for Animal Health (OIE) can be found on the OIE website via:
http://www.oie.int/wahis/public.php?page=country_reporting&this_country_code=GBR&detailed=1
http://www.oie.int/wahis/public.php?page=country_reports&year=2009

Form B (i)

Background information on outbreaks of reportable infectious diseases in Plants - United Kingdom

Disease	Number of cases per year				
	2005	2006	2007	2008	2009
Ciborinia camelliae (Camelia flower blight					
Clavibacter michiganesis subsp. *sepedonicus* (Ring rot in seed potatoes)					
Colletotrichum acutatum (Strawberry black spot) in propagating crops			1		
Columnea latent viriod			4		1
Erwinia amylovora (Fireblight)					
Florida passionflower virus			1	3	
Pepino mosaic virus in tomato crops		8	3	4	6
Phytophthora kernoviae	19	7	10	24	49
Phytophthora ramorum (Sudden Oak Death)	163	74	103	121	167
Plasmopara obducens (Downy mildew) of Impatiens					
Potato spindle tuber viroid on tomato crops					
Potato virus M (non-European isolate) in seed potato crops				1	
Puccinia horiana (Chrysanthemum white rust)					

Disease	Number of cases per year				
	2005	2006	2007	2008	2009
Ralstonia solanacearum (potato brown rot)	1				
Ralstonia solanacearum (potato brown rot) in river surveys	4	1	6	5	2
Synchytricum endobioticum (potato wart disease) in private gardens				2	
Tobacco mild green mosaic virus				2	
Xanthomonas fragariae	2				

The serious diseases above were all investigated, but occurrence could be explained by normal introduction means and there was no evidence of deliberate malicious introduction. There were also a number of findings of less important routine notifiable diseases, but these can also be explained by natural means of spread or by trade pathways.

Form B (ii)

Information on outbreaks of infectious diseases and similar occurrences, that seem to deviate from the normal pattern

1.	Time of cognizance of the outbreak	December 2009
2.	Location and approximate area affected	Initially Scotland, subsequently also England
3.	Type of disease/intoxication	Anthrax
4.	Suspected source of disease/ intoxication	Contaminated heroin
5.	Possible causative agent(s)	*Bacillus anthracis*
6.	Main characteristics of systems	Severe sepsis
7.	Detailed symptoms, when applicable	
	- respiratory	Not featured
	- circulatory	Coagulopathy, haemorrhaging
	- neurological/behavioural	confusion, coma
	- intestinal	GI bleeding
	- dermatological	Soft tissue oedema & necrotising fasciitis
	- nephrological	renal impairment / failure
	- other	circulatory collapse, hypovolaemic shock, multi-organ failure due to anthrax toxins, damage leading to death
8.	Deviation(s) from the normal pattern as regards	
	- type	new form of anthrax infection
	- development	"Injectional" Anthrax – new clinical picture
	- place of occurrence	No normal pattern – 1st such outbreak of anthrax in Scotland

	- time of occurrence	n/a
	- symptoms	unusual presentations of illness not previously associated with anthrax
	- virulence pattern	Average age 37. All injecting drug users with heroin habit
	- drug resistance pattern	sensitive to current recommended antibiotics
	- agent(s) difficult to diagnose	identified using standard culture & PCR methods
	- presence of unusual vectors	1st outbreak with suspected association with contaminated heroin sourced from Afghanistan / Pakistan
	- other	n/a
9.	Approximate number of primary cases*	30 in Scotland; 3 in England
10.	Approximate number of total cases*	33 in UK
11.	Number of deaths*	11 in Scotland, 1 in England
12.	Development of the outbreak	ongoing
13.	Measures taken	National Outbreak Control Team convened. Advice on avoiding heroin use given to drug users and service workers. Also drug users recommended to seek treatment for addiction and prescribing of heroin substitutes. NHS services alerted to enhance surveillance and assist early diagnosis & appropriate management.

***** All figures given were those available on 30 March 2010. Latest information on the outbreak is available at http://www.hps.scot.nhs.uk/anthrax/index.aspx

Encouragement of publication of results and promotion of use of knowledge

At the Third Review Conference it was agreed that States parties continue to implement the following:

> **"Encouragement of publication of results of biological research directly related to the Convention, in scientific journals generally available to States parties, as well as promotion of use for permitted purposes of knowledge gained in this research."**

UK policy is that basic research in biosciences, and particularly that related to the Convention, should generally be unclassified and applied research is also unclassified to the extent possible without infringing on national and commercial interests.

It is UK policy to encourage research scientists funded by the Government to publish the results of their work in scientific journals readily available to the scientific community. This applies to the publication of the results of research carried out in the research centres and laboratories subject to exchange of information under Confidence Building Measure A.

Insofar as publication of research on outbreaks of diseases covered by Confidence Building Measure B is concerned again it is UK policy to encourage research scientists funded by the Government to publish the results of their studies.

Examples of relevant scientific journals and other scientific publications include the following:

American Journal of Tropical Medicine and Hygiene
Analyst
Antimicrobial Agents and Chemotherapy
Antiviral Research
Applied and Environmental Microbiology
Applied Biosafety
Archives of Virology
Avian Pathology
Bioinformatics
Biosensors and Bioelectronics
BMC Genomics
BMC Infectious Diseases
BMC Microbiology
BMC Proceedings
Clinical and Vaccine Immunology
Developmental and Comparative Immunology
Emerging Infectious Diseases
Epidemiology and Infection
Eurosurveillance
Expert Review of Vaccines
FEMS Microbiology Letters
Foodborne Pathogens and Disease
Government Veterinary Journal
Indian Journal of Experimental Biology
Infection and Immunity
Influenza and Other Respiratory Viruses
Institute for Animal Health Biology of Animal Infections Series

International Journal of Antimicrobial Agents
International Journal of Experimental Pathology
International Journal for Parasitology
Journal of Aerosol Science
Journal of Bacteriology
Journal of Comparative Pathology
Journal of Food Protection
Journal of General Virology
Journal of Immunological Methods
Journal of Medical Microbiology
Journal of Molecular and Genetic Medicine
Journal of the Royal Society Interface
Journal of Veterinary Diagnostic Investigation
Journal of Virological Methods
Journal of Virology
Lancet
Letters in Applied Microbiology
Methods in Molecular Biology
Microbial Pathogenesis
Microbiology
Molecular Immunology
Nature
Nature Biotechnology
Outlooks on Pest Management
Parasite Immunology
Parasitology Research
Philosophical Transactions of The Royal Society B-Biological Sciences
PLoS Neglected Tropical Diseases
PLoS One
Proceedings of the National Academy of Sciences
Proteomics
The EMBO Journal
The Veterinary Journal
Transactions of the Royal Society of Tropical Medicine and Hygiene
Transboundary and Emerging Diseases
Trends in Immunology
Trends in Microbiology
Trends in Parasitology
Vaccine
Veterinary Immunology and Immunopathology
Veterinary Microbiology
Veterinary Research
Viral Immunology
Virology
Virology Journal
Virus Research

Form D

Active promotion of contacts

1. Planned international conferences, symposia, seminars, and other similar forums for exchange.

For each event the following details are provided:

a.	**Name of the conference, etc**.	EBSA 13th Annual Conference.
	Arranging organization(s), etc.	European Biosafety Association
	Time	22 - 23 April 2010
	Place	Ljubljana, Slovenia
	Main subject(s) for the conference, etc.	General biosafety including blood borne pathogens, industrial scale production issues & biosecurity
	Conditions for participation	Fee payment (reduction for EBSA members)
	Point of contact for further information, registration, etc.	http://www.ebsaweb.eu/EBSA_13.html

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b.	**Name of the Conference, etc.**	VLA Conference 2010
	Arranging organisation(s)	VLA
	Time	22 – 24 September
	Place	University of Warwick
	Main subject(s) for the conference, etc.	National Conference
	Conditions for participation	Fee
	Point of contact for further information, registration, etc .	http://www.defra.gov.uk/vla/news/new_conf_vla2010.htm

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d.	**Name of the conference, etc.**	Health Protection 2010
	Arranging organization(s)	Health Protection Agency
	Time	14 – 15 September
	Place	University of Warwick

Main subject(s) for the conference, etc.	- reducing harm from key infections - minimising health impact from environmental hazards, including radiation, chemicals and poisons - Reducing harm from incidents and emergencies - ensuring biological medicines are safe and effective in reducing disease
Conditions for participation	by application
Point of contact for further information, registration, etc.	http://www.healthprotectionconference.org.uk

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2. Information regarding other opportunities

(i) UK Biological Non-Proliferation Programme

The goals of the G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction (GP), agreed at Kananaskis in 2002, included the redirection of former weapons scientists and preventing terrorists and states of proliferation concern from acquiring or developing biological weapons and related materials, equipment and technology. The GP Principles therefore included a commitment to promote the adoption, universalisation, full implementation and strengthening of the Biological and Toxin Weapons Convention (BTWC). The UK's Biological Non-Proliferation Programme supports these goals and principles and is aimed primarily at addressing potential proliferation risks in the biological sciences. The Programme covers projects and activities such as:

- training in biosafety, modern diagnostics and disease surveillance, covering both human and animal infectious diseases;
- technical advice and training for laboratories holding dangerous pathogens;
- building sustainable capacity in crop disease surveillance, diagnosis and control;
- collaborative research projects on infectious disease surveillance and diagnostics;
- contribution to regional workshops in support of BTWC implementation and export controls;
- Supporting attendance of experts at BTWC meetings.

The UK has conducted or funded activities in the following regions: the Caucasus, Central Asia, and the Middle East and North Africa (MENA). The programme is expected to continue to develop in scale and geographical range over the coming years. The main regions for which engagement is planned are the Former Soviet Union, South Asia, and MENA. Activities will continue to focus on engagement with biological scientists and provide support for the safe and secure development of dual use biological science, in compliance with the BTWC. The emphasis will be on developing sustainable projects in collaboration with recipient governments, other national programmes and NGOs, making use of the beneficial aspects of dual use science to enhance and protect public health and agriculture.

(ii) Institute for Animal Health, Pirbright Laboratory

The Institute for Animal Health runs a number of training courses open to external participants:

- Foot and mouth disease diagnostics and epidemiology (2 weeks)
- Bluetongue diagnostics and epidemiology (2 weeks)
- Capripox viruses diagnostics and epidemiology (1 week)
- Notifiable diseases training course for Animal Health Vets (2 days)

These courses can be viewed at the following link: http://www.iah.ac.uk/events/transbo.shtml. Further details can be obtained from Dr Chris Oura (IAH training manager) or Elisabeth Wilson (training administrator) at the following email address: pirbright.etraining@bbsrc.ac.uk

The Institute for Animal Health also offers opportunities for postgraduate research. Details on studentships can be obtained via the following link: http://www.iah.ac.uk/students/index.shtml

Form E

Declaration of legislation, regulations and other measures

Relating to		Legislation	Regulations	Other measures	Amended since last year
(a)	Development, production stockpiling, acquisition or retention of microbial or other biological agents, or toxins, weapons, equipment and means of delivery specified in Article I	YES	YES	YES	NO

Links to the UK's Anti-Terrorism, Crime and Security Act 2001 (ATCSA):

http://security.homeoffice.gov.uk/legislation/anti-terrorism-crime-sec-act2001/
http://security.homeoffice.gov.uk/legislation/anti-terrorism-crime-sec-act2001/pathogens-toxins-amend-legis/index.html

Link to text of the UK's Biological Weapons Act 1974:

http://www.statutelaw.gov.uk/

The Academic Technology Approval Scheme (ATAS) was introduced on 1 November 2007
For information, see link:

http://www.fco.gov.uk/en/about-us/what-we-do/services-we-deliver/atas/

(b)	Exports of micro-organisms* and toxins	YES	YES	YES	NO

Link to current UK Export control lists:

http://www.bis.gov.uk/assets/biscore/eco/docs/control-lists/uk-consolidated-list.pdf

Further information on UK export control legislation can be found at:

http://www.businesslink.gov.uk/bdotg/action/layer?topicId=1084474434&r.s=e&r.l1=1079717544&r.lc=en&r.l3=1084471558&r.l2=1084228483&r.i=1084471678&r.t=RESOURCES
http://www.businesslink.gov.uk/bdotg/action/detail?r.s=m&r.l1=1079717544&r.lc=en&r.l3=1084474434&r.l2=1084228483&type=RESOURCES&itemId=1084478417

* Micro-organisms pathogenic to man, animals and plants in accordance with the Convention.

(c)	Imports of micro-organisms and toxins	YES	YES	YES	YES

Amendments since last year:

The Plant Health Order was amended in 2009:

http://www.opsi.gov.uk/si/si2009/pdf/uksi_20090587_en.pdf

The Specified Animal Pathogens Order was amended in 2009:

http://www.defra.gov.uk/corporate/consult/pathogens/sapo-amendment0911.pdf

Links to UK import/export legislation for animal and plant pathogens:

http://www.defra.gov.uk/foodfarm/farmanimal/diseases/pathogens/index.htm
http://www.fera.defra.gov.uk/plants/plantHealth/statutoryLegislation.cfm

Further information on UK domestic controls to prevent the proliferation of nuclear, chemical and biological weapons, and their means of delivery has been submitted under UN Security Council Resolution 1540 requirements and can be found via:

http://www.un.org/sc/1540/nationalreports.shtml
http://www.un.org/sc/1540/legisdocuments.shtml

Form F

Declaration of past activities in offensive and/or defensive biological research and development programmes

1. Date of entry into force of the Convention for the State Party.

26 March 1975

2. Past offensive biological research and development programmes:

Nothing new to declare.

Form G

Declaration of vaccine production facilities

1. **Name of facility:** MedImmune UK Ltd

2. **Location (mailing address):** Plot 6 Renaissance Way
Boulevard Industry Park
Speke
Liverpool
L24 9JW

3. **General description of the types of diseases covered:**

Influenza vaccine

Form G

Declaration of vaccine production facilities

1. Name of facility: Novartis Vaccines and Diagnostics Limited

2. Location (mailing address): Gaskill Road
Speke
Liverpool,
L24 9GR

3. General description of the types of diseases covered:

During 2009, Influenza vaccines only were manufactured at this facility. Two distinct types:-

a) Northern Hemisphere Influenza vaccine - Cultivation of egg adapted influenza virus Three strains incorporated within the vaccine (Trivalent).

b) H1N1sw pandemic influenza vaccine (monovalent i.e. single strain) - Cultivation in eggs of attenuated H1N1 strains produced by 'Reverse Genetics' and classical reassotant techniques. Designated at containment category allocated Cat 2 (Enhanced) initially and the lowered in line with World Health Organisation guidance to Cat 2. The enhancements refer to a requirement for additional personal protection (use of RPE) and vaccination of operators with current Northern Hemisphere Influenza vaccine.
This agent in its reverse genetic form is designated as a GMO & an appropriate manufacturing licence (GM consent) has been granted from the UK Competent Authority.
IAPO (the 'Importation of Animal Pathogens Order', 1980) does not apply to these strains due to attenuation at the genetic level.

In response to the H1N1 pandemic a new purpose built influenza vaccine manufacturing facility started manufacturing during mid 2009, support structures were also brought on line including product/raw material testing laboratories and a waste treatment plant. This manufacture was in parallel to manufacture at the existing facilities.

Form G

Declaration of vaccine production facilities

1. Name of facility: Health Protection Agency
Centre for Emergency Preparedness and Response

2. Location (mailing address): Porton Down
Salisbury
Wiltshire
SP4 0JG

3. General description of the types of diseases covered:

Manufacturer of anthrax vaccine