



Australian Government
**Department of Agriculture,
Fisheries and Forestry**

INTERIM INSPECTOR GENERAL OF BIOSECURITY

**Management of quarantine waste from international
vessels at Australian seaports**

**INTERIM INSPECTOR GENERAL OF BIOSECURITY
AUDIT REPORT
June 2010**

No: 2009-10/06

Table of contents

Summary	1
Recommendations	2
Biosecurity Services Group formal response	3
Objectives and scope	7
Methodology	7
Background and context	7
Interim Inspector General of Biosecurity	7
Quarantine waste from international sea vessels	8
Biosecurity risks	9
Findings and recommendations	9
Onboard storage	9
Collection and transport	10
Treatment	11
Effectiveness of current procedures in mitigating biosecurity risks	15
BSG verification of compliance with procedures	16
General observations - Naval vessels	17
Annexure 1 - Results of fieldwork	18

Note:

For the public release of this report personal information will be removed in accordance with the *Privacy Act 1998*.

Summary

Biosecurity Services Group (BSG) systems to manage quarantine waste are designed to minimise the risk of exotic pests and diseases being introduced to Australia during collection, storage, transport and treatment and disposal of the quarantine waste.

This audit examined the performance of these systems and was undertaken by the Interim Inspector General of Biosecurity (IIGB), Dr Kevin Dunn, as part of the 2009-10 IIGB audit work program.

The IIGB found that, in general, an adequate level of biosecurity is provided by the delivery of BSG measures for the management of quarantine waste associated with international sea vessel types examined in this audit (cargo container carriers, an Australian naval logistics supply ship and a Pacific region cruise vessel). Further, the procedures do not appear to be overly onerous.

The collection procedures in removing quarantine waste from vessels appear to be designed and implemented to effectively mitigate any potential biosecurity risks. The approach to onboard storage varies to meet the practicalities of the design and use of each vessel type. The vessels inspected demonstrated good levels of cleanliness and order in the management of waste.

The IIGB considers it is necessary for BSG to conduct periodic technical and practical assessments of the procedures applying to the handling and treatment of quarantine waste to ensure risk management techniques are adequate and contemporary.

While incineration and autoclaving are suitable treatment methods for this quarantine waste material, it is the IIGB's view that deep burial is a lesser preferred treatment method for high risk quarantine waste due to the challenges of managing biosecurity risks in a prevailing open-air system. The IIGB has recommended action in relation to reviewing the use of deep burial for quarantine waste, particularly for cases of significant amounts of food-based waste. The IIGB has also recommended technical review (including on-site inspection) of the application and adequacy of current requirements (May 2010) to manage biosecurity risks associated with the deep burial of quarantine waste. This should have particular regard to management of risks posed by foraging animals and the adherence to requirements for immediate covering of unloaded quarantine waste.

From this audit, BSG's Australian Quarantine and Inspection Service staff observed appear to be well-trained to identify and handle potential breakdowns in procedures that may lead to biosecurity risks. In addition, the conduct and proficiencies of the third parties undertaking the treatment of the quarantine waste appear, in general, to be appropriate in managing the biosecurity risks.

The BSG measure to verify the compliance of third party providers with documented procedures was found to be satisfactorily performed.

The IIGB did not detect any major systems defects. Certain system weaknesses were identified and are considered to be relatively low risk. The recommendations in this report support policy and procedural improvements with a view to ensuring effective risk management is in place for seaport quarantine waste and quarantine waste more generally.

Recommendations

Rec #:	Recommendation	BSG management response
1	The Biosecurity Services Group should verify by means of official on-site inspection that the operations of approved deep burial facilities include the immediate covering of all unloaded quarantine waste as described in the <i>AQIS Compliance Agreement Process Management System for the Burial of Quarantine Waste</i> .	Agree.
2	The Biosecurity Services Group should undertake a technical assessment of the adequacy of current requirements (May 2010) to manage biosecurity risks associated with the deep burial of quarantine waste. In particular, this should address the adequacy of prevention, surveillance and response activities for intrusion of foraging animals (particularly birds) onto a site where deep burial operations occur. Operational procedures, compliance agreements and other relevant documentation should then be updated accordingly.	Agree in principle.
3	Quarantine food-waste from international vessels (including sea and aircraft) should be treated, where practicable, by autoclaving or incineration in preference to deep burial. The Biosecurity Services Group should review its procedures for quarantine waste to determine if food waste can be practically isolated from other quarantine waste material collected and transported for treatment.	Disagree.
4	To ensure contemporary scientific risk management underpins relevant policies and procedures, the Biosecurity Services Group should undertake periodic technical assessment (including on-site examinations) of the risk management procedures that apply to quarantine waste.	Agree in principle.



Dr Kevin Dunn
Interim Inspector General of Biosecurity

Biosecurity Services Group formal response



Australian Government
Department of Agriculture, Fisheries and Forestry

**Deputy Secretary and
Executive Director**
Australian Quarantine and Inspection Service

Ms Karen Nagle
General Manager
Audit and Evaluation Branch

Dear Ms Nagle

Thank you for your letter of 10 August 2010 providing me with the opportunity to comment on the draft audit report *Management of quarantine waste from international vessels at Australian seaports* prepared by the Interim Inspector General of Biosecurity (IIGB).

I note that the IIGB found, in general, that there is an adequate level of biosecurity provided by Biosecurity Services Group (BSG) measures for managing quarantine waste associated with the international sea vessels.

As highlighted by the draft audit report, the systems in place to manage the handling and disposal of quarantine waste are designed to minimise the risk of exotic pests and diseases being introduced into Australia via this pathway. Quarantine waste can be generated by a variety of activities and while this report focuses specifically on waste associated with certain types of international sea vessels, the recommendations must be considered in the overall context of quarantine waste management activities.

BSG agrees or agrees in-principle with three of the four recommendations and disagrees with the remaining recommendation. BSG accepts the findings made by the IIGB but notes that many of the observations appear to be based on the accepted but unsubstantiated view that quarantine waste from international vessels is a high risk. Consequently we have suggested in our response to Recommendation 4 that, in addition to the recommended evaluation of existing risk management procedures for quarantine waste, there should also be a technical examination of the actual and likely biosecurity risks posed by waste. This is necessary for BSG to ensure that its risk management protocols are appropriate and that effort is targeted to biosecurity risks of concern.

A number of initiatives are already underway that align with the recommendations including a review of the third party arrangements in place with premises that handle and dispose of quarantine waste. In addition, in August 2010, BSG released an internal business policy detailing quarantine waste management standards and requirements. These measures when fully implemented will enhance the existing framework to ensure ongoing effective management of the biosecurity risks associated with quarantine waste.

BSG's full response to the recommendations identified in the draft report are included in the attached table of recommendations.

Yours sincerely

A handwritten signature in black ink, appearing to read "Rona Mellor". The signature is written in a cursive style with a large initial 'R'.

Rona Mellor

16 September 2010

Objectives and scope

The objectives of this systems audit were to examine the performance of BSG's policies and procedures to manage the biosecurity risks associated with onboard quarantine controls, collection from vessels and the transport, storage and treatment of quarantine waste from international sea vessels.

It also examined the assurance activities undertaken by BSG to verify performance of staff and contracted third parties against the procedures and systems.

Areas outside the scope of this audit were the management of ballast water, human sewage effluent and potable water. The management of recyclable material was not examined. This audit was not specifically focussed on BSG and third party compliance against instructional material.

Methodology

This audit was undertaken by Dr Kevin Dunn, IIGB, during May 2010 (see table 1).

Procedural checks were undertaken during visits to Sydney (the BSG Central East Region) and Brisbane (BSG North East Region) and included observation and inspection of operations, facilities and documentation.

Quarantine processes examined included approval of third party service arrangements, recordkeeping, surveillance, reporting and verification.

Table 1. Fieldwork undertaken

Location:	Central-East Region, Sydney	North-East Region, Brisbane
Audit date:	19 May 2010	25 May 2010
Auditor:	IIGB	IIGB

Background and context

Interim Inspector General of Biosecurity

As part of its preliminary response to the Review of Australia's Quarantine and Biosecurity Arrangements (known as the Beale review), the Australian Government agreed to establish a statutory office of the Inspector General of Biosecurity. This role would subsume that of the Interim Inspector General of Horse Importation as recommended by the Hon. Ian Callinan AC in his formal inquiry into the 2007 equine influenza outbreak in Australia. The role would be established under new biosecurity legislation, which is currently being developed.

In the absence of enabling biosecurity legislation interim arrangements are in place.

On 1 July 2009, the government appointed Dr Kevin Dunn as the IIGB. The role of the IIGB is to provide independent assurance of the performance and appropriateness of the many biosecurity systems in the biosecurity continuum that are the responsibility of the BSG in the Department of Agriculture, Fisheries and Forestry. This is to be achieved through conducting systems audits, investigations and reviews and preparing appropriate reports.

The IIGB role is independent of the BSG and reports to the Australian Government Minister for Agriculture, Fisheries and Forestry. The IIGB is accountable to the Secretary, Department of Agriculture, Fisheries and Forestry on matters of governance and administration.

Quarantine waste from international sea vessels

The *Quarantine Regulations 2000* defines quarantine waste as:

- material used to pack or stabilise cargo
- galley and food waste
- human, animal or plant waste (e.g. sewage, animal by-products, soil and plant by-products)
- refuse or sweepings from the holds or decks of a vessel or installation.

More broadly, quarantine waste may also include any other waste or material which comes in contact with quarantine waste, the contents of AQIS¹ airport amnesty bins and articles seized by AQIS and/or not collected by clients.

BSG imposes controls on the collection, movement, storage and treatment of quarantine waste from international vessels arriving into Australia. This is achieved through:

- stringent vessel storage requirements while in Australian waters
- pre-arrival reporting requirements to determine if the vessel's waste has been managed appropriately and if it is intended to discharge waste at port
- conducting physical inspections to confirm that the waste is being managed on board in accordance with BSG direction
- the use of BSG approved collectors and transporters
- storage of quarantine waste at quarantine approved premises² or approved storage facilities
- the treatment and/or disposal of quarantine waste occurring at a quarantine approved premises or under the direct supervision of an AQIS quarantine officer.

Quarantine waste management activities are performed by:

- an officer appointed under the *Quarantine Act 1908* or
- a person under the direction or under the direct supervision of an AQIS quarantine officer or
- an AQIS approved person - an appropriately trained person employed by a third party operating under a valid AQIS compliance agreement or
- an operator who has a valid AQIS compliance agreement or is registered as a quarantine approved premises to perform the relevant activity.

Waste on board international vessels is treated as quarantine waste if it is to be discharged in Australian territory while the vessel retains its international status. A vessel's status may be changed to domestic where the vessel has been 'stripped' of all quarantine risk material, this allows unrestricted domestic movement. Once a

¹ Note that in July 2009, the Australian Quarantine and Inspection Service (AQIS) was integrated into the new BSG in the Department of Agriculture, Fisheries and Forestry. AQIS functions continue under a range of import and export legislation including the *Quarantine Act 1908* and the *Export Control Act 1982*.

² Quarantine approved premises are approved by the Director of Quarantine for the performance of quarantine activities under section 46A of the *Quarantine Act 1908*.

vessel holds domestic status, all waste discharged from the vessel may then be treated as domestic waste rather than quarantine waste.

Effective performance by AQIS quarantine officers with policy and procedures set out in work instructions underpins the legal and administrative framework for managing quarantine risks associated with waste from international vessels at seaports. Included in this framework is a high level of verification of compliance in operations conducted by third parties under formal compliance agreements in quarantine approved premises.

The functional elements of the biosecurity controls that apply to seaport waste are delivered by BSG's Seaports Program, Cargo Branch and Co-regulation and Support Branch. Seaports Program inspectors oversight the requirements onboard and at the collection of waste from vessels. Co-regulation officers monitor the compliance of approved third party operators who undertake the collection, transport, storage and treatment of seaport quarantine waste under formal AQIS compliance agreements.

At the time of this audit, there was no overarching BSG policy for quarantine waste management. Each BSG program has independently developed and implemented waste management protocols to suit its specific activities. BSG has subsequently advised the IIGB that a draft national policy is in development.

Biosecurity risks

The biosecurity risks associated with the collection, transport, storage and treatment of quarantine waste are the potential for exotic pests and diseases within the waste to contaminate other goods or to be introduced into Australia. This could occur through unauthorised access (by humans and or foraging animals) or loss and spillage.

Findings and recommendations

Onboard storage

In order to meet BSG's waste management requirements, international vessels intending to arrive in Australia are required to store the waste in such a way as to prevent unauthorised access, contamination of other goods and escape into the environment of exotic pests and/or diseases. This is typically achieved through containment devices such as leak-proof bins, locked dedicated garbage rooms and cold containment facilities. In addition, quarantine officers seal all galley grinders and swing bins, where available, during the first port inspection to prevent their use while in Australian waters.

The requirements for the collection of quarantine waste are outlined in the *AQIS Compliance Agreement Process Management System for the Collection of Quarantine Waste*.

During this audit five vessel inspections were undertaken, including cargo container vessels, an Australian naval logistics supply ship and a Pacific region cruise vessel.

Overall, the operations involving the onboard management of ship waste, including quarantine waste, were found to be appropriate and not overly onerous to address the potential biosecurity risks.

The approach to onboard storage varied to meet the practicalities of the design and use of each vessel type. The vessels inspected demonstrated good levels of cleanliness and order in the management of waste.

Collection and transport

Where quarantine waste is discharged from a vessel it is usually removed by the crew and given into the custody of an approved transport company operating under an AQIS compliance agreement.

Quarantine waste may however, be temporarily stored within an BSG approved storage area or a quarantine approved premises prior to transportation or treatment/disposal. The requirements for storage of quarantine waste are outlined in the *AQIS Compliance Agreement Process Management System for the Storage of Quarantine Waste*. The quarantine waste must be in a leak-proof receptacle located in a clearly marked, secure and vermin-free area.

Quarantine waste can be transported by an approved third party operating under a valid compliance agreement or by a quarantine officer in an AQIS vehicle. The requirements for transporting quarantine waste are outlined in the *AQIS Compliance Agreement Process Management System for the Transportation of Quarantine Waste*. In summary:

- the waste must be contained so as to prevent loss, spillage and/or leakage during loading and transport
- any material that comes in contact with the quarantine waste must be treated as quarantine waste
- receptacles used to transfer waste must be well maintained, tamper-proof, clearly marked and suitably anchored to the vehicle to prevent movement, spillage or loss during transportation
- the vehicle must be fully enclosed, easily cleanable and fitted with sufficient equipment to deal with a spillage. The vehicles must be cleaned and disinfected prior to pick-up of consignments of non-quarantine waste
- an BSG approved transport route must be used. This is a route that is reasonably known to be the most direct route and, within reason, is not within close proximity of farms and rural areas.

Overall, the collection and transport procedures in place provide an adequate level of quarantine security for quarantine waste from overseas vessels.

The collection procedures in removing quarantine waste from the vessel appear to be designed and implemented to effectively mitigate the potential biosecurity risks. Systems of direct transfer to an approved transport vehicle or leak-proof temporary bins or skips were observed.

AQIS officers observed appear to be well trained to identify and handle potential breakdowns in procedures that may lead to biosecurity risks. For example, one skip containing quarantine waste on the wharf area of Garden Island was observed during this audit to have its top cover prevented from full closure by the skip's contents. This made the contents potentially accessible by scavenging birds, such as ibis or crows, although none were seen in the vicinity of the wharf at the time. The AQIS officer accompanying the IIGB identified this issue and made an immediate call to the transport company and directed them to attend to this unclosed bin with a view to its early removal to treatment.

To minimise the chance of spillage on route, the waste must be fully enclosed in the transport vehicle. This audit showed that the majority of the vehicles used were appropriate for transporting quarantine waste to avoid spillage or loss. Further as an added measure, in some cases containers dedicated to quarantine waste are used. While it may not always be possible, the IIGB was encouraged to see that some approved providers have dedicated vehicles for the transportation of quarantine waste. This provides additional safeguards to minimise the potential biosecurity risks that may occur from inadvertent spillage and cross-contamination of material in subsequent loads. Spill kits containing collection pan, broom, bags and detergent/disinfectant were also observed on board the waste transport trucks inspected.

There was one observed occurrence whereby the rubber seals to complete closure of the doors were found to be deteriorated on one of the transport trucks. Inspection of a new truck destined to soon replace the abovementioned truck showed that it has a fully-enclosed waste storage compartment with effective seals that are enhanced by a mechanised closing system.

While the transport of quarantine waste is to occur along a BSG approved route, this part of the quarantine waste management process was not able to be observed during this audit. Therefore, the IIGB cannot comment on the adequacy of this part of the management requirements. However, at the incineration facility inspected during this audit, a real-time global positioning system monitoring capability was demonstrated that showed the position of quarantine waste transport trucks at all times during their daily schedule. This technology provides archived records of truck movements that are available for BSG compliance checking of this third party provider.

While not able to be observed during this audit, the IIGB was informed of procedures to clean and disinfect containers and relevant compartments of transport vehicles after each collection cycle. Sites at which this occurs and the available equipment were described and, in two of three treatment facilities, were inspected at this audit. There appeared to be adequate awareness of cleaning requirements and suitable equipment to enable compliance with cleaning requirements.

Treatment

The treatment procedures and facilities used for the destruction of quarantine waste are the same regardless of waste source. BSG approved treatments for quarantine waste include deep burial, autoclave, high temperature incineration, chemical treatments, irradiation and export. The treatment and/or disposal of quarantine waste occurs only at a quarantine approved premises or under direct supervision of a quarantine officer.

The requirements for each treatment method are outlined in the respective process management systems documents (i.e. *AQIS Compliance Agreement Process Management System for the Burial of Quarantine Waste*).

This audit observed the treatment of quarantine waste by certified providers at three individual premises approved in turn for autoclaving, incineration or deep burial of quarantine waste. These facilities are not dedicated to treating seaport quarantine waste only and handle waste from a variety of sources.

Autoclaving

In summary the requirements for the treatment of quarantine waste by autoclave are:

- autoclaving equipment is to be operated and maintained in accordance with the manufacturer's instructions and must be cleaned and disinfected daily
- quarantine waste should be a maximum of 50 millimetres (mm) in diameter or must be resized to meet the maximum particle size prior to treatment
- airborne particles derived from preparation operations are to be contained to eliminate escape into the environment
- quarantine waste is to be treated for a minimum of 30 minutes at a minimum core temperature of 121° celcius (C) and a minimum of 30 pounds per square inch (psi)
- any material that comes in contact with the quarantine waste must be treated as quarantine waste
- waste water that has been in contact with the quarantine waste must be contained and treated prior to disposal
- vermin control measures are to be in place at all times.

This audit found that the principles, infrastructure and technical processes applying to the autoclaving of quarantine waste at the inspected facility were sound and adequately addressed biosecurity risks.

The IIGB considers the lack of documented requirements for the operators of waste handling equipment within the receival and pre-autoclaving areas of the facility to use only dedicated clothing and footwear in those areas to be a systems related-weakness. Personal decontamination measures applicable to those workers prior to their exit from the facility site appear not to be documented.

Incineration

In summary the requirements for high-temperature incineration of quarantine waste are:

- incineration equipment is to be operated and maintained in accordance with the manufacturer's instructions and must be cleaned and disinfected daily
- airborne particles derived from preparation operations are to be contained to eliminate escape into the environment
- quarantine waste is to be treated at a minimum temperature of 1000°C, with the resulting product comprising of ash
- any material that comes in contact with the quarantine waste must be treated as quarantine waste
- waste water that has been in contact with the quarantine waste must be contained and treated prior to disposal
- vermin control measures are to be in place at all times.

The incineration process appeared to be highly efficient from an environmental perspective and highly effective from a biosecurity risk management perspective. In particular, the inspected facility was considered to be a model facility—effectively designed and operated. All waste handled at this facility, including quarantine waste, receives no direct human contact by the operators of the facility. A sophisticated fully-automated control and monitoring system for the entire incineration process is used. Computerised monitoring of all stages operates in real time for the plant management. Real-time on-line access of the process is shared with the Queensland Environmental Protection Agency.

Deep burial

In summary the requirements for the burial of quarantine waste are:

- any material that comes in contact with the quarantine waste must be treated as quarantine waste
- the waste must be directly discharged into the deep burial site
- the quarantine waste must be immediately covered with non-quarantine waste material, prior to compaction. For deep burial the quarantine waste material must be immediately covered by at least two metres of non-quarantine waste material prior to compaction
- measures must be in place to prevent the loss of quarantine waste at the time of deep burial (by wind, birds, vermin, feral animals, etc)
- active bird deterrent measures must be operational during the tipping, covering and compaction of quarantine waste.

Deep burial at appropriate sites is a cost efficient and potentially effective means of disposal of quarantine waste. Ensuring that the deep burial process has been conducted effectively is a challenging issue for a biosecurity regulatory system.

Because of time and space factors in a prevailing open air system, deep burial procedures can entail a risk that exotic pests or disease organisms that may be present in quarantine waste could gain exposure to potential host animals and plants. Such exposure may be by direct contact with waste or by indirect means such as carriage of organisms by wind or on contaminated implements.

The deep burial site inspected during this audit is on a large disused open-cut mine site and handles large quantities of domestic waste for the most part and, by comparison, small quantities of quarantine waste. Three semi-trailer loads of domestic waste were discharged at this site during this inspection visit. The specific deep burial hole for quarantine waste is routinely covered by two metres of infill.

At the audit interview the facility manager indicated that the coverage of the specific deep burial hole occurred at the end of each working day. The equipment on site is capable of ensuring this in inclement weather.

However, the AQIS officer present at the time of this audit inspection subsequently has advised the IIGB that this waste coverage process occurs immediately after the unloading of quarantine waste. This is in accordance with BSG requirements that specify that this coverage by two metres of compacted material should be in that immediate timeframe.

No quarantine waste was being treated at this facility during the audit visit. It was not possible to observe the actual operations being conducted.

There is a need to fully clarify that this immediate coverage procedure is adopted on that site by the management and operators.

Recommendation 1:

The Biosecurity Services Group should verify by means of official on-site inspection that the operations of approved deep burial facilities include the immediate covering of all unloaded quarantine waste as described in the AQIS Compliance Agreement Process Management System for the Burial of Quarantine Waste.

A small number of cattle are grazed on part of that overall site; however they are separated by a stock-proof fence from the waste disposal operations and cannot enter the access ways to the waste disposal site nor the site itself.

In response to questioning the site manager advised that a small number of feral pigs are occasionally sighted in the vicinity of a creek on the greater disused mine site. These sightings are reportedly a considerable distance from the waste disposal site. However, there appeared to be no formulated control plan or response plan associated with any potential movement of feral pigs onto the waste disposal site.

No cultivated or native plants were seen to be present in the immediate vicinity of the waste handling and disposal site.

It appeared challenging for operators at that site to ensure there could be no contact between flying birds and quarantine waste at all times during each day's operations. Management advised that it has in place, a breeding suppression program for ibis (scavenging birds that have a predilection for waste). No ibis were seen in the vicinity of this site during this inspection. However, during the inspection a large number of crows (about 40-60) were observed flying and landing in immediate proximity to the landfill (deep burial) site.

The quarantine waste intended for treatment by deep burial later on the day of audit was mostly stripped furnishings and fittings taken from cabins and public use areas on an international cruise ship that was undergoing refurbishment at a Brisbane dry-dock. This was considered to be of low quarantine risk by the AQIS officers supervising the system of its collection and transport and disposal.

Overall, where deep burial facilities, such as the one inspected in this audit, are used to treat quarantine waste from international vessels, there remains a low risk of some quarantine waste material being dispersed by wind or accessed by foraging animals notably birds. In the latter case, the possibility of this occurring would be higher where food-based material was included in the quarantine waste.

The IIGB was not able to consider the scientific risk assessment process that led to the development of procedures for treatment by deep burial of quarantine waste. The current policies and procedures are understood to have been in place for several years. The IIGB investigations were not able to answer the questions of whether the compliance agreement documentation and compliance agreement audit check lists have been technically approved as adequately providing risk management measures necessary to prevent exposure to relevant exotic pests and diseases through contact between foraging animals and quarantine waste.

The IIGB considers that deep burial can remain an appropriate means of treatment for quarantine waste, and is practical especially for bulk materials or large dimensional items. In view of the scale and open-air nature of operations, it poses greater challenges than other approved treatments to ensure that biosecurity risks are managed.

The IIGB considers it would be worthwhile for BSG to consider whether the use of deep burial should be limited to treating only quarantine waste assessed to be low risk. In particular, where possible and practical food-based quarantine waste or quarantine waste known to contain a majority proportion of food-based material be treated by autoclaving or incineration in preference to deep burial. While this

audit considered arrangements for managing seaport quarantine waste, this risk would apply to all quarantine waste regardless of its source. Therefore a policy adoption along these lines would also be applicable to quarantine waste from airports and other sources.

Recommendation 2:

The Biosecurity Services Group should undertake a technical assessment of the adequacy of current requirements (May 2010) to manage biosecurity risks associated with the deep burial of quarantine waste. In particular, this should address the adequacy of prevention, surveillance and response activities for intrusion of foraging animals (particularly birds) onto a site where deep burial operations occur. Operational procedures, compliance agreements and other relevant documentation should then be updated accordingly.

Recommendation 3:

Quarantine food-waste from international vessels (including sea and aircraft) should be treated, where practicable, by autoclaving or incineration in preference to deep burial. The Biosecurity Services Group should review its procedures for quarantine waste to determine if food waste can be practically isolated from other quarantine waste material collected and transported for treatment.

Effectiveness of current procedures in mitigating biosecurity risks

It is imperative that procedures in place to manage quarantine waste adequately address potential biosecurity risks. To the extent possible, it is also important that procedures are practical, efficient, cost-effective and not overly onerous.

BSG biosecurity risk management procedural systems that rely on serial inputs from more than one program (such as the seaports quarantine waste management arrangements) face a potential challenge to ensure that contemporary scientific risk management underpins policies and procedures. The IIGB is of the view that it is important that periodic technical assessments that take a 'through chain' approach and consider the policy and delivery responsibilities of all BSG programs involved are needed to achieve this.

This audit of seaport waste management systems reinforces the importance of this approach.

An example from this audit is associated with the handling and processing of quarantine waste material to reduce the individual particle size sufficiently to enable them to be fitted into an autoclave. In the facility that autoclaves quarantine waste, workers involved with mechanically grinding the waste before treatment have long and close contact with waste material and contaminated run-off fluids from this material. All quarantine waste was aggregated in one large pile before this process irrespective of its individual component size.

It was not apparent at the time of audit that the footwear and work clothing of these workers is subject to any specified quarantine restriction regarding exit from the worksite. A review of the BSG compliance agreement audit documents for the premises did not show any reference to quarantine conditions applying to these workers' footwear and clothing.

A potential biosecurity risk may be created if these workers leave the premises with footwear and clothing soiled by quarantine risk material, for example contaminated matter ordered for destruction or food waste of overseas origin. A presence of potential hosts, such as poultry, pigs or plants, at their subsequent destinations could lead to potential exposure of these hosts to exotic pests and diseases.

Hence, while the compliance audit documents inspected showed no significant corrective actions necessary, this was limited to those risk-management requirements listed on the compliance document produced for that facility. The IIGB is particularly interested in how the BSG system identifies if a further necessary risk management measure has been overlooked or should be added due to changing operational circumstances.

Based on observations and information from this audit inspection, the IIGB considers it is necessary for BSG to conduct periodic technical and practical assessments of the procedures applying to the handling and treatment of quarantine waste to ensure risk management techniques are adequate and contemporary. The timing of this assessment could be aligned with reviews of work instructions and standard operating procedures to achieve resource efficiencies.

Recommendation 4:

To ensure contemporary scientific risk management underpins relevant policies and procedures, the Biosecurity Services Group should undertake periodic technical assessment (including on-site examinations) of the risk management procedures that apply to quarantine waste.

BSG verification of compliance with procedures

Third party providers undertaking activities to collect, store, transport or treat quarantine waste must operate under a valid AQIS compliance agreement. The compliance agreement details the outcomes to be achieved for the specified activity and outlines the requirements of the third party, which are described in schedules that form part of the compliance agreement.

In signing a compliance agreement, the third party acknowledges that failure to comply with the requirements of the provided schedules may compromise quarantine integrity and therefore an auditing system is necessary to monitor performance.

BSG undertakes audits of third party providers to verify compliance with procedures. BSG surveillance and verification of compliance by third parties with existing documented procedures was found to be satisfactorily performed at this audit. However, there remains a concern of the IIGB that a biosecurity risk that has not been identified at the time of documentation of the compliance procedures or a new emerging risk may go undetected unless a systematic technical evaluation is built into procedures development and review for each approved third party arrangement.

Examination of records is a core component of this verification process. The BSG compliance agreement process management system documentation and compliance agreement schedules clearly outline the record keeping requirements.

Records were observed at the various stages of the management process for quarantine waste from international sea vessels. The records on board the international vessels pertaining to waste management were found to be thorough and complete. Adequate records and record keeping by the transport providers was evident at this inspection. All three facilities had comprehensive and orderly record keeping.

General observations - Naval vessels

Naval vessels similar to that inspected on this audit mostly provision with Australian foodstuffs. They however leave Australian waters during deployments and may link with international vessels as well as enter foreign ports. Discussion occurred at audit about the policy of returning of often large quantities of Australian origin foodstuffs after the vessel has visited overseas ports or some of its crew have boarded foreign vessels at sea.

Subsequent to the fieldwork of this audit, the IIGB examined the relevant BSG policy that permits return of non-commercial consignments of Australian food products excluding whole seeds and fresh fruit and vegetables that fulfil certain specified conditions.

In these situations with the Royal Australian Navy, where large costly volumes of provisions of Australian origin can be involved, the IIGB considers the BSG policy is reasonable and provides practical outcomes while maintaining adequate biosecurity.

Annexure 1 - Results of fieldwork

REGION: CENTRAL EAST REGION

Location: Sydney, NSW

Date: 19 May 2010

Ship Inspection

XXXXX

Port Botany

NSW

Waste management element	Findings
Onboard storage	<p>The galley grinder was inspected and had its AQIS seal intact.</p> <p>Colour coded storage bins are maintained in the galley area for food, general and plastics/recycling waste.</p> <p>A locked caged area is maintained in a covered area of the main deck for lid-closed drums of waste including food waste. This area was found to be clean, well maintained and all containers were adequately closed.</p>
Collection of waste	<p>During this ship inspection no waste transfer occurred to the relevant approved collector (Xxxx) vehicle that was on location. The ship's master is understood to have decided to retain waste on board during the vessel's stay in Australian ports and waters on this voyage.</p> <p>Removal of waste from ships such as this is undertaken by dropping the waste (placed in sealed bags) from the deck of the vessel directly into the waste compartment of the truck parked on the wharf below through the opened top cover doors of the vehicle. This transfer procedure is undertaken by the truck driver.</p>

Documents	<p>Documentation pertaining to waste management was inspected. Adequate records were found to be kept in a neat and thorough manner.</p> <p>These included the log of operations of the ship's galley grinder involving discharge to sea. This record included date, time and the navigational coordinates relevant to each operation.</p> <p>Also examined was the log of garbage discharges which includes food waste discharge. Records include date, time, navigation coordinates and volume of each class of garbage discharged.</p>
Summary considerations	<p>The BSG system of surveillance and audit for compliance with documented procedures was found to be satisfactorily performed at this audit.</p> <p>At this inspection, the operations involving the onboard management of ship waste on this vessel were found to be conducted in an adequate manner relevant to Australian biosecurity requirements.</p>

Ship Inspection

XXXXX

Garden Island Naval Dock
Woolloomooloo NSW

Waste management element	Findings
Storage on board	<p>Waste storage takes place in dedicated closable drums. Waste control has been placed under the control of the Navigator on this vessel. This appears to be an unusual line-of-control arrangement that is reportedly different from other similar naval vessels on which waste control lies under the control of the Supply Officer. The Navigation Officer was not available for discussion during this short audit inspection. Documentation was not available for inspection.</p> <p>The galley and food storage areas were inspected. The galley grinder is used at sea beyond the prescribed 16 nautical mile limit. These facilities appeared well operated and efficient.</p>

<p>Collection of waste</p>	<p>Quarantine waste is transferred to dedicated and marked skip bins that are placed near the foot of the ship's gangplank when it arrives in port. It is transferred manually by crew from the ship to these skips. Quarantine waste collection and transport at Garden Island is currently provided by the AQIS-approved third party provider Veolia.</p> <p>The skips are often left on the wharf for 24 hours before transport to a treatment facility. The skips inspected during this audit had hinged top covers that close the skip from entry of birds or animals.</p> <p>One skip containing quarantine waste on the wharf area of Garden Island was observed to have a top cover that was prevented from full closure by contents. This made the contents potentially accessible by active scavenging birds such as ibis or crows although none were seen in the vicinity of the wharf at the time of this audit inspection. The AQIS quarantine officer accompanying the IIGB made an immediate call to the transport company and directed them to attend to this unclosed bin with view to early removal to treatment.</p>
<p>Summary considerations</p>	<p>The BSG system of surveillance and audit for compliance with documented procedures was found to be satisfactorily performed at this audit.</p> <p>Inspection of this vessel demonstrated adequate potential for compliance with biosecurity requirements.</p>

Waste Treatment Facility (Autoclaving) Inspection

XXXXX

XXXXX

Revesby NSW 2212

This company is approved under AQIS Compliance Agreement for:

- collection of waste
- transport of waste
- autoclaving of waste

Waste management element	Findings
Documents	<p>A well appointed office with a dedicated staff member is present on site. Records were consolidated relating to each day's delivery and autoclaving operations. Random examples of company documentation concerning receipt of waste consignments from Sydney seaport and airport were examined.</p> <p>Adequate proficiency of record keeping by this company both by the collection driver and by the operators of the treatment facility was evident at this inspection.</p>
Removal to approved waste collector	<p>An approved collection vehicle was present at the Port Botany wharf adjacent the MV APL Amazonite that was inspected also on 19 May 2010.</p> <p>Interview of this Xxx collection driver and inspection of the truck was conducted. This confirmed that the routine method of removal of the waste from XXXXX is for the waste to be contained in closed plastic bags and then dropped directly over the side of the ship into the opened doors of the truck on the wharf below.</p> <p>A spill kit containing collection pan, broom, bags and detergent/disinfectant was seen to be carried by in the cabin of the truck to be on hand to clean up any accidental spillage.</p> <p>Documentation kept by the truck driver that shows the daily log of waste collection, times and duplicate receipts was sighted at this truck inspection at Port Botany.</p>

<p>Autoclaving of waste</p>	<p>The Revesby operational site of XXXXX was inspected. Operations were not in progress at the time. The operational procedures were explained by management in a step-by-step explanation of the process on-site.</p> <p>Waste is unloaded through a suitably secure unloading bay involving a shute-like arrangement onto the floor of the enclosed waste treatment building. Trucks are washed down and disinfected at that site by drivers after unloading is completed. Trucks associated with this facility are dedicated to quarantine waste only.</p> <p>All processing of waste from the unloading until the completion of autoclaving is done within this fully enclosed building which has concrete walls and flooring.</p> <p>There appeared to be no means of treating individual consignments of waste separately. All consignments are aggregated in a loose pile at the end of the delivery shute. All waste is loaded into a mechanical grinder by a bob-cat front end loader. After it is broken down into small fragments (macerated) it is loaded into open trolley bins that, once filled, are rolled into one of two lengthy cylindrical autoclave units.</p> <p>The autoclave process is monitored by temperature sensors within the unit. A time-temperature log is automatically recorded and this hard copy record is stored in company files that are inspected during BSG compliance audits. Examples of these charts were inspected during this visit.</p>
<p>Transporting of waste</p>	<p>Two dedicated quarantine waste trucks from this company were inspected - one at both Port Botany and one at the company premises at Revesby.</p> <p>The waste containment space is fully enclosed. Openings to this compartment are a large rear door and the gabled top which consists of two large hinged doors that open from the centre-line upwards and outwards. Rubber seals to complete closure of these doors were found to be deteriorated around the top openings of the older truck.</p> <p>An inspection of a new replacement truck showed that it has a fully enclosed waste storage compartment with effective seals that are enhanced by a mechanised closing system.</p>

Summary considerations	<p>The BSG system of surveillance and audit for compliance with documented procedures was found to be satisfactorily performed at this audit.</p> <p>During the course of this audit inspection, an example was found associated with the handling and processing of quarantine waste material to reduce the individual particle size sufficiently to enable them to be fitted into an autoclave. In one facility that autoclaves quarantine waste material, workers involved with mechanically grinding the waste before treatment have long and close contact with waste material and contaminated run-off fluids from this material. All quarantine waste was aggregated in one large pile before this process irrespective of its individual component size.</p> <p>It was not apparent at the time of audit that the footwear and work clothing of these workers is subject to any specified quarantine restriction regarding exit of the worksite. A review of the BSG compliance agreement audit documents for the premises did not show any reference to quarantine conditions applying to these workers' footwear and clothing.</p> <p>A biosecurity concern potentially exists if these workers leave the premises with footwear and clothing soiled by quarantine risk material, for example contaminated matter ordered for destruction or food waste of overseas origin. A presence of potential hosts such as poultry, pigs or plants at their subsequent destinations could lead to potential exposure to exotic pests and diseases.</p>
-------------------------------	---

REGION: NORTH EAST REGION

Location: Brisbane, QLD

Date: 25 May 2010

Ship Inspection

XXXXX

Port of Brisbane QLD 4178

Waste management element	Findings
Onboard handling and storage	<p>Waste generated on this vessel is stored in 240 litre wheeled plastic covered bins on the open stern deck. They are colour-coded and marked for the various types of waste, including food waste, plastics, bottles and glass and cardboard. A small amount of food waste, including peanut husks was observed in the bottom of a bin marked plastics. A crewman was called by the ship's chief officer to replace this material in the appropriate food waste bin at the time of this inspection.</p> <p>The ships record of disposal of quarantine waste at sea was inspected. This appeared complete and well maintained. The last recorded disposal of food waste overboard was recorded to have occurred at least 24 hours before the ships arrival in Brisbane.</p>
Collection	<p>There was no ship waste collection from this vessel during this audit inspection. During interview with the Chief Officer it was reported that waste is carried by ship's crew down the gangplank and placed directly into the quarantine waste transport vehicle.</p>
Summary considerations	<p>The BSG system of surveillance and audit for compliance with documented procedures was found to be satisfactorily performed at this audit.</p> <p>The quarantine waste control and collection system associated with this vessel and with the collection service at this terminal showed adequate levels of quarantine security.</p>

Ship Inspection

XXXXX

Port of Brisbane QLD 4178

Waste management element	Findings
Onboard ship handling and storage	<p>This vessel arrived in Brisbane, its first Australian port on this visit, the evening before this audit inspection was undertaken. It was due to sail to Sydney and other Australian ports later in the day of this inspection.</p> <p>Quarantine waste is stored on this vessel in colour-coded leak-proof steel cylindrical bins that are undercover on the main stern deck. These bins are closed by removable heavy steel lids. Waste is contained in these bins inside heavy plastic liners. No waste was scheduled for removal in Brisbane. The bins contained a considerable amount of quarantine waste and the ship's Chief Officer advised that this was due for discharge at the port of Sydney. The storage system demonstrated good levels of cleanliness and order.</p> <p>The ships record of disposal of quarantine waste at sea was inspected. This appeared complete and well maintained. The last record of disposal of food waste from the vessel was reported to have occurred four days prior to its arrival in Brisbane.</p> <p>The Chief Officer reported that the galley grinder for food waste will not be used by the crew during the vessel's stay in Australian waters during this voyage.</p>
Summary considerations	<p>The BSG system of surveillance and audit for compliance with documented procedures was found to be satisfactorily performed at this audit.</p> <p>The quarantine waste control and collection system associated with this vessel and with the collection service at this terminal showed adequate levels of quarantine security.</p>

Ship Inspection

XXXXX

Forgacs Cairncross Dockyard
Thynne Rd
Morningside QLD 4170

Waste management element	Findings
Onboard ship handling and storage	<p>A brief inspection was undertaken of the quarantine waste management system on board this vessel. The ship was undergoing refurbishment of its accommodation at the time of this audit. Bustling activity involving a large number of crew and workers involved with the refurbishment process taking place on board this vessel during this audit inspection.</p> <p>Relevant shipping company and crew personnel were unavailable for information and questioning on the onboard quarantine waste storage and handling systems during this inspection. Documentation was similarly not available for inspection on board during this visit.</p> <p>During its seasonal placement in the Australia/South Pacific region each year, this cruise vessel is understood to take on provisions mainly at Australian ports such as Brisbane. Cruises occur in the South Pacific region area during this time.</p> <p>Observations of the areas dedicated to the handling and storage of quarantine waste on board this vessel showed no evidence of inadequacy in the facilities or functionality for the appropriate on board, processing and storage of quarantine waste. The process of unloading of quarantine waste from this vessel was not observed.</p>
Collection of waste	<p>Collection of waste is understood to involve the use of a hoist to deliver the waste bins for emptying into leak-proof skips located on the wharf adjacent to the vessel. Several filled and tarpaulin covered skips of quarantine waste were inspected on the wharf near the ship and were awaiting transport to a disposal site. Trucks from an BSG approved transport company collect these skips.</p> <p>Documents examined at the security gate-house located at the entry-exit point to the dockyard site showed that records of name company and time are kept of trucks removing waste from this site.</p>

Summary considerations	<p>This audit was performed at a time when the ship was in dock and was undergoing a major refurbishment of accommodation areas. In this respect it was not operating as a functioning international vessel. However, in view of the large amount and variety of waste material being removed from the vessel, BSG has classified this as quarantine waste.</p> <p>The observations undertaken at this inspection showed no evidence of inadequacy in compliance with biosecurity requirements during this refurbishment process.</p>
-------------------------------	---

Waste Treatment Facility (Incineration) Inspection

XXXXX

XXXXX

Willawong QLD 4110

This company is approved under AQIS Compliance Agreement for:

- transport of waste
- storage of waste
- incineration of waste

Waste management element	Findings
Collection and transport of waste	<p>Waste collection by this company was not inspected during this audit. The company demonstrated its computerised tracking system for each of its waste collection/transport trucks. This system uses GPS technology and allows real-time mapping as well as retrospective route analysis of each vehicle. This aids operational efficiency and facilitates quarantine security.</p> <p>Wheeled 240 litre bins are used to collect all waste. The quarantine bins inspected during this audit showed that the waste was bagged in plastic inside each bin. The handling of the waste during transport and preparation for autoclaving involves operator contact only with the exterior of these bins. A wide range of health service, industrial and commercial waste is treated in addition to quarantine waste.</p>

	Quarantine bins are clearly marked and are dedicated to the collection and transport of quarantine waste only.
Documentation	A modern computerised recording system is used in this facility which has well appointed office accommodation. This was demonstrated and examples of records were inspected. The system of documentation and document management was found to be satisfactory at this audit.
Treatment - incineration	<p>This facility, presented as a clean and very efficiently run operation. The incineration process appeared to be highly efficient from an environmental perspective and highly effective from a biosecurity risk management perspective. All waste handled at this facility, including quarantine waste receives no direct human contact by the operators of the facility.</p> <p>The facility operates for 23 days of every month. The remaining days are used for maintenance of the plant. Quarantine and other waste collected during that maintenance period is subject to on-site mechanical compression and refrigerated storage at 4 °C in leak-proof enclosed steel bins.</p> <p>A sophisticated control and monitoring system for the entire incineration process is fully automated. Computerised monitoring of all stages operates in real time for the plant management. Real-time on-line access of the process is continuously shared with the Queensland Environmental Protection Agency.</p>
Summary considerations	<p>The BSG system of surveillance and audit for compliance with documented procedures was found to be satisfactorily performed at this audit.</p> <p>This was found at audit to be an efficiently designed and operated facility.</p>

Waste Treatment Facility (Deep-Deep burial) Inspection

XXXXX

XXXXX

Willowbank QLD 4306

This company is approved under AQIS Compliance Agreement for:

- storage of waste
- deep burial of waste

Waste management element	Findings
Background	<p>This facility operates as a joint-venture between two major waste disposal companies in the Brisbane area. It consists of a landfill waste disposal enterprise with operations located in a large disused open cut coal mine. Domestic and other waste, including quarantine waste is deposited over an impervious bottom layer consisting of an introduced compacted clay base overlain overlaid by a heavy plastic lining layer. This appears to have been professionally planned and well executed.</p> <p>This facility commenced to handle the disposal of quarantine waste in early 2009.</p> <p>The majority of waste handled at this site is domestic waste. On each day of operations, a hole of approximately 7-10 metres in width is dug in the current work area for the deposit of quarantine waste. This is immediately adjacent to the area where domestic waste is unloaded, spread and compacted by large heavy duty tracked machinery. At the end of each day's operations the quarantine waste hole is covered by an overlay mixture of introduced soil and degraded industrial waste.</p> <p>[Note: Unbeknown in advance to the Interim Inspector General before this site inspection visit, the site manager - Mr XXXX - was found at the inspection to have been a former employee in the role of XXXX of the QLD Department of Primary Industries and Fisheries. He had been an employee in the Biosecurity Business Group (and relevant predecessor organisational unit) of that Department during some of the term of the IIGB's former role of Assistant Director General, BSG. In that former role the IIGB had no involvement with the recruitment or any direct management of Mr XXXX. The IIGB has had no contact</p>

	with Mr XXXX in the ensuing years up to the date of this audit.]
Transport	<p>Quarantine waste is transported to this deep burial site by at least three major BSG approved waste transporting companies in the Brisbane area.</p> <p>Seaport waste arriving at the site is contained in leak-proof open metal skips. Examples of these skips awaiting transport to the site were observed during the same-day inspection of the cruise liner undergoing refurbishment at a dry dock in the Brisbane riverside suburb of Morningside.</p> <p>Before being loaded with quarantine waste at the seaport, these skips are internally lined with heavy duty plastic sheeting. After they are filled, the open top of the skip is completely covered by plastic tarpaulin that is tied down on all sides.</p> <p>After delivery and unloading of quarantine waste at the deep burial site, the carriage containers and relevant compartments of the trucks are cleaned and disinfected on site by high pressure spraying with a two per cent citric acid solution. This is done using a mobile spray unit that was observed at the unloading site. This washing down of process was not observed during this inspection due to there being no quarantine waste delivery at that time.</p>
Treatment - deep burial	<p>The unloading of their skip was not observed during this inspection. This is understood to involve mechanical hoisting of the skip containing the waste and the use of gravity to eject the waste contents into the dedicated quarantine deep burial pit.</p> <p>The overall site on which this landfill and deep burial operation is conducted is reported by management to be fenced with a two metre high wire fence. A small number of cattle are grazed on part of that overall site; however they are separated by a stock-proof fence from the waste disposal operations and cannot enter the access ways to the waste disposal site nor the site itself.</p> <p>A large number of crows were observed in the immediate area of the waste disposal operations at the site. Management advised that they have in place, a breeding suppression program for ibis (scavenging birds that have a predilection for waste). No ibis were seen in the vicinity of this site during this inspection.</p> <p>No cultivated or native plants were seen to be present in the immediate vicinity of the waste handling and disposal operations site.</p>

	<p>In response to questioning the site manager advised that a small number of feral pigs is occasionally sighted in the vicinity of a creek on the greater disused mine site. These are reportedly a considerable distance from the waste disposal site. While the compliance agreement for this facility contains brief requirements for deterrence and control of animals, the operators of the facility appeared to have no formulated control plan or response plan associated with any potential movement of feral pigs or other animals to the waste disposal site. (See Recommendation 4)</p>
<p>Documentation</p>	<p>Paper based records are kept at the administrative office located at the waste treatment site. Examples of recent consignments were inspected. These showed adequate recording of quarantine waste consignments including reconciliation with quarantine directions for destruction.</p>
<p>Summary considerations</p>	<p>The BSG system of surveillance and audit for compliance with documented procedures was found to be satisfactorily performed at this audit.</p> <p>At the inspection of the deep burial site conducted during this audit inspection, a large number of crows (about 40-60) were observed flying in immediate proximity to the land fill (deep burial) site. This site handles large quantities of domestic waste for the most part and, by comparison, small quantities of quarantine waste. Three semi-trailer loads of domestic waste were discharged at this site during this inspection visit.</p> <p>The specific deep burial hole for quarantine waste is routinely covered by approximately two metres of infill at the end of the working day. It appeared impossible for operators at that site to ensure no contact between flying birds with quarantine waste at all times during each day's operations. If this quarantine waste contained food scraps of overseas origin or potentially contaminated material ordered for destruction then the risk of a biosecurity breakdown could be significant.</p> <p>The quarantine waste observed at this inspection was mostly stripped furnishings and fittings taken from cabins and public use areas on an international cruise ship that was undergoing refurbishment at a Brisbane dry-dock. This was considered to be of low quarantine risk by the AQIS officers supervising the system of its collection and transport and disposal. However, if this facility is used to treat food waste from international vessels (or any contaminated goods ordered for quarantine destruction), there remains a small but significant risk of exposure to birds.</p>