Ministry for Primary Industries
Manatū Ahu Matua

Importation of Palm Kernel Expeller from Malaysia

Malaysia Visit
2-6 March 2015

MPI Audit Report

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1 Executive summary

The purpose of this audit was to assess the systems in place to manage the biosecurity risk associated with the export of Palm Kernel Expeller (PKE) from Malaysia to New Zealand and to identify any gaps or deficiencies. An MPI official visited Malaysia between the 2nd and 6th of March 2015 to view the systems and activities conducted by the National Plant Protection Organisation (NPPO) of Malaysia, Malaysia's Department of Agriculture (DOA), for the audit and approval of facilities for exporting PKE to New Zealand.

This visit served as a follow up to an earlier visit in 2013 to Malaysia to verify that appropriate systems and procedures are in place for the audit and approval of facilities for exporting PKE to New Zealand. The visit is also important to ensure that the implementation of revised requirements has been effective since the Import Health Standard was amended in June 2013 to require PKE to only be exported from approved facilities in the exporting countries, including Malaysia.

The trip was also used to visit PKE facilities approved for export to New Zealand to ensure the systems in place at these approved facilities are meeting the requirements of New Zealand's IHS. The auditor visited 12 PKE facilities in the regions of Klang, Johor Bahru and Bintulu, accompanied by Malaysian DOA officials. The following key findings and recommendations were identified.

1.1 Key Findings

1. The system and procedures developed by Malaysia's DOA for the audit and approval of PKE facilities, and phytosanitary certification of PKE exports, fully meet New Zealand's requirements. The phytosanitary inspection process and supervision of fumigation conducted by DOA also fully meet New Zealand's requirements.

2. The oversight provided by DOA on the PKE supply chain is more than sufficient to meet New Zealand's requirements. All states visited in Malaysia have fully implemented the system and procedures for the phytosanitary certification and auditing and approval of PKE facilities. The ongoing programme of auditing PKE facilities approximately every 6 months to ensure continued compliance is effective in identifying any non-compliances and ensuring PKE facilities undertake corrective actions.

3. All manufacturing and storage facilities visited met New Zealand's import requirements for supply chain security. Some minor recommendations were made to DOA and several PKE facilities to ensure best practice was undertaken at each facility.

4. Based on these audits, the risk assessments previously completed including for foot and mouth disease (FMD), and the current requirements in the IHS with the proposed amendments, MPI considers that the biosecurity risk from the import of PKE remains very low. While concerns about contamination of PKE have been raised by stakeholders, there is an extremely low potential for harmful pests or diseases to

become associated with PKE prior to or during shipment to New Zealand. There have been no detections of regulated pests or disease found in PKE imports following clearance in New Zealand despite the large number of imports over the past decade.

1.2 Summary of Recommendations

That Malaysia's DOA operating as the NPPO:

1. Maintains the current system for auditing and approving facilities (manufacturing and storage) to ensure approved facilities continue to fully meet the export requirements for New Zealand.

2. Audits any new storage warehouses operated by the PKE facilities prior to their use for storing PKE for export to New Zealand to ensure full compliance with New Zealand's standards.

3. Maintains and updates (where required) the list of approved facilities on the DOA website to ensure MPI and all parties know those facilities that are approved for exporting PKE to New Zealand.

4. Updates the list of approved facilities on the DOA website to include PKE port terminal facilities as per Section 6.3.1 of the DOA's Work Instruction (refer to Appendix 6), or alternatively, revises Section 6.3.1 to state that port terminal facilities do not require to be published on the DOA website as they do not produce or trade PKE for export.

2 Definitions and Abbreviations

NPPO	National Plant Protection Organisation
MPOB	Malaysian Palm Oil Board
PKE	Palm Kernel expeller/extract or meal
DOA	Department of Agriculture, Jabatan Pertanian Malaysia
ISPM	International Standard for Phytosanitary Measures
PKO	Palm Kernel oil
FMDV	Foot and Mouth Disease Virus
FMD	Foot and Mouth Disease
IHS	Import Health Standard
OIE	World Organisation for Animal Health

3 Purpose

The purpose of this audit was to assess the systems in place to manage the biosecurity risk associated with the export of PKE from Malaysia to New Zealand. An MPI official visited Malaysia between 2nd and 6th of March to view the systems and procedures conducted by Malaysia's Department of Agriculture (DOA), for the audit and approval of facilities for exporting PKE to New Zealand, as well as to visit a selection of PKE facilities approved for export to New Zealand.

The visit also serves as a follow up to audits in Malaysia by MPI officials in May 2013 and August 2013 to view the systems in operation for PKE exports to New Zealand. The major finding from these visits were that systems and processes used for phytosanitary certification and inspection were by and large appropriate and meet New Zealand's requirements. However New Zealand's Import Health Standard (IHS) was urgently amended in June 2013 to require approved exporting countries to formally audit and approve PKE facilities to ensure they meet the requirements of New Zealand's IHS. PKE facilities approved for export to New Zealand were fully implemented from 30 September 2013.

The specific activities of the audit include:

1. reviewing the auditing and approval processes used by DOA to approve PKE facilities for export to New Zealand
2. reviewing the phytosanitary certification and inspection processes used by DOA
3. reviewing the security of the supply chain from production to shipping to reduce the likelihood of:
    a. infestation by regulated pests,
    b. contamination by vectors capable of transmitting animal diseases, and
    c. contamination by other regulated articles that may be a risk to animal health and welfare.
4. verifying that the assurances provided by Malaysia on certification are accurate for PKE consignments exported to New Zealand.

4 Background

4.1 Palm Kernel Expeller/Extract (PKE)

PKE is a by-product made from the extraction of oil from the palm kernel seeds and fruits of the oil palm, *Elaeis guineensis.* PKE is the mashed solid part of the seed kernels left remaining after oil extraction.

The palm kernel is the edible seed of the oil palm tree. The fruit yields two distinct oils - palm oil derived from the outer parts of the fruit, and palm kernel oil derived from the kernel.

Figure 1: Palm fruit

Figure 2: Palm kernels

The pulp left after oil is rendered from the kernel is formed into palm kernel expeller, which is the mashed solid part of the seed kernels left remaining after oil extraction. Palm kernel expeller or extract (PKE) is the same product as palm kernel meal (PKM).

Figure 3: Palm kernel expeller

As a final product, PKE is a pure homogenous processed material produced under extremely high temperatures. The name PKE is based on the fact that the seeds have undergone extraction by an expeller process for the oil and this is the residue, whereas the name PKM is more aligned with the physical state of the "meal" like product.

A summary of the oil palm production process, including PKE production is in Appendix 1.

4.2 PKE Production in Malaysia and Imports into New Zealand

Imports of PKE have become a significant production input to New Zealand's dairy industry over the past decade as a high-protein supplementary feed for dairy cows. In the past decade, annual imported quantities of PKE have increased dramatically from approximately 100,000 tonnes in 2004 to over 1.5 million tonnes in 2014. PKE is an important source of supplementary stockfeed, especially in drought-affected areas.

Latest figures show New Zealand agents imported more than 2 million tonnes from January 2014 to December 2014. The highest volumes of imports are from Malaysia and Indonesia

which make up greater than 99% of the total volume imported into New Zealand. PKE is generally shipped from Malaysia and Indonesia to New Zealand in bulk vessels.

Table 1: Imports of PKE into New Zealand between 1 January 2014 and 31 December 2014

Exporting Country	Imported Volume (Tonnes)	Percentage
Indonesia	960,813	47.7%
Malaysia	1,040,908	51.7%
Solomon Islands	0	0%
Papua New Guinea	11,085	0.6%
TOTAL	2,012,807	**100%**

Local use for PKE is as a fuel, and also as a feed in poultry and egg production. Around 50% of the PKE produced in Malaysia is exported to New Zealand, and the remaining 50% to various European and Asian countries. It appears that a growing proportion of the market share is shifting to New Zealand as exports continue to increase to New Zealand. The phytosanitary requirements for these countries can vary. For example, India and Taiwan do not require a phytosanitary certificate to accompany the PKE. The European Union (EU) requires a basic phytosanitary certificate without any additional declarations.

4.3 Import Health Standard Requirements

The current phytosanitary requirements for the importation of plant-based animal feeds are specified in the IHS *Importation into New Zealand of Processed Animal Feeds of Plant Origin*. PKE is one of a number of single-ingredient processed animal feeds including seed meals and various pelletised products that are imported into New Zealand with entry requirements listed in section 7.3 of the above IHS.

The IHS requires that PKE must only be imported from approved countries. Only four countries are currently approved for export to New Zealand – Indonesia, Malaysia, Papua New Guinea and the Solomon Islands. The National Plant Protection Organisation (NPPO) in each country must also approve facilities for export to New Zealand. The requirement for each exporting country NPPO to approve facilities was added to the IHS in June 2013 as an outcome from the visits conducted by MPI officials to Indonesia and Malaysia in May 2013. As of March 2015, there are 30 approved facilities in Malaysia, 17 in Indonesia, and one each in Papua New Guinea and the Solomon Islands.

For each consignment, certification and assurances are provided to state that the PKE has been produced and stored in facilities approved by the NPPO of the exporting country for export to New Zealand. The NPPO of the exporting country must verify and certify that the PKE:

- has been heat processed to at least 85 degrees Celsius;
- has been stored in factories dedicated to the processing of the palm fruits and kernels, and kept clean and free of potential contamination following production;

- has been handled and stored in a manner to prevent contamination with any unprocessed plant material, vermin, birds, ruminant animals, faecal material and other animal products;
- has been inspected according to official procedures prior to export, and
- has been fumigated with phosphine or methyl bromide prior to or during shipment.

On arrival in New Zealand all consignments are inspected by MPI biosecurity officers. If regulated pests or other contaminants are found, an approved method of treatment is undertaken to mitigate any biosecurity risk.

During the initial development of the IHS, the risk of regulated pests entering and establishing in New Zealand from processed animal feed imports was assessed. The risk that processed plant by-products for use as animal feed could introduce foot and mouth disease virus (FMDV), as well as other potentially significant diseases, was considered negligible because such material is not a natural "host" for foot and mouth disease, and the IHS requires that:

- the heat treatment used in the standard manufacturing process for animal feeds of pant origin exceeds 85^{o}C (note: palm kernel is usually heated to over 95^{o}C during processing) and is more than sufficient to inactivate diseases, such as FMDV, that might be present.
- imported product must have been processed in a facility that is dedicated to the production of plant based products only, and after processing, the product needs to be stored in indoor facilities that are used exclusively for this purpose to ensure that it cannot be contaminated.

FMDV is a highly contagious viral disease that causes high fever, vesicular lesions and ulcerations, and is considered to be the most economically devastating animal disease. The disease is widespread, occurring endemically in areas of South America, Africa and Asia.

FMDV is recognised to be present in Malaysia. The official World Organisation for Animal Health (OIE) FMD situation for Malaysia is listed on the WAHID website: http://www.oie.int/wahis_2/public/wahid.php/Wahidhome/Home. FMDV is present in domestic animals but limited to one or more zones. Since 1992 there have been outbreaks of FMDV seen every year in some states of the Malaysian peninsula, particularly in the northern states (Senawi 2012). Despite efforts to control FMDV, the disease is currently endemic in all of the Malaysian Peninsula and is considered as one of the biggest factors hindering livestock production (Senawi 2012). In 2004 the OIE recognised the Malaysian states of Sabah and Sarawak on the island of Borneo as FMD-free without vaccination: http://www.oie.int/?id=246.

In 2013 MPI produced an update of the risk assessment specifically for FMDV associated with PKE imports: http://www.biosecurity.govt.nz/files/regs/imports/risk/pke-meal-rapid-risk-assessment.pdf

This risk assessment confirmed that:

- PKE is not a natural host for FMDV;

- the heat processing associated with PKE production would inactivate any FMDV;
- contamination of manufactured PKE prior to shipment could be a source of FMDV introduction into New Zealand, and
- reliable certification that PKE is stored and transported in a manner that avoids contact with FMDV-susceptible livestock can effectively manage the risk.

This risk assessment re-confirmed the need for the import requirements that are currently stated in the IHS to mitigate the potential biosecurity risks of PKE.

4.4 Stakeholder Concerns

In the past, the grains section of Federated Farmers and members of the public have approached MPI and highlighted potential concerns in relation to imports of stock feed, particularly with regard to imported PKE. Concerns associated with PKE production have also been raised by environmental groups and members of the public due to the growing land use for the production of palm oil, in countries like Malaysia and Indonesia, which has caused increased deforestation of native forests.

A key part of the biosecurity system in New Zealand is reporting by stakeholders (and members of the public) of suspected new organisms or other biosecurity risks. Several concerns have been raised by farmers after finding live pests associated with PKE on farms in New Zealand and all reports have been investigated by MPI. For example, MPI received a report during 2013 that the leg of an animal was found buried in a shipment of PKE on a farm. The report was investigated by MPI and the leg was found to be from a goat of New Zealand origin, based on the identification of fly larvae in the meat. It appears that the leg was buried in the PKE pile after delivery to the farm.

MPI have received a number of reports of possible physical contaminants in imports of PKE, such as metal fragments, which have required investigation. While metal contaminants are not a biosecurity risk, there may be concerns over the safety of PKE for use directly as an animal feed when physical contaminants are present. As a result, the Agricultural Compounds and Veterinary Medicines (ACVM) group of MPI have recently introduced a 100% screening requirement to be conducted in New Zealand to ensure that PKE is free of physical contamination. This involves product being sieved through at least a screen of 4mm in size. This requirement was issued as an ACVM (Imported Feed Commodities) Notice under section 76(A) of the ACVM Act. The notice outlines how importers are to ensure the safety of imported feed commodities and sets out the requirements for record keeping and traceability. This requirement was fully implemented on 21 January 2015, and MPI intend to undertake audits of PKE feed suppliers to ensure they are complying with this requirement.

4.5 Pathway Compliance

There have been very few interceptions of regulated pests on PKE over the last 10 years. Previous concerns raised by stakeholders has resulted in MPI (or its predecessor, the Ministry of Agriculture and Forestry) conducting surveys of animal feed imports, including

PKE, at various times. In 2009, inspections for pests at feed storage facilities associated with the major ports in Auckland, Tauranga, Christchurch and Invercargill resulted in 106 identifications, representing 52 pests, all of which are already present in New Zealand and they were all non-regulated organisms. In addition, an MPI border survey was completed during 2010 and 2011 to inspect randomly selected consignments of processed animal feed imports, including PKE. A total of 98 consignments of PKE were surveyed, associated with both imports in bulk vessels and containers. No regulated organisms were found on palm kernel imports, and no slippage was identified by surveyors after the usual inspection by MPI inspectors.

During 2013, MPI undertook to identify all pests detected in association with imported bulk stockfeed, including PKE imports. The only interceptions found on PKE were associated with imports of PKE in containers from Papua New Guinea and Solomon Islands. These interceptions were primarily non-regulated pests, but a small minority of regulated pests was also found. All pests were found to be hitchhiker pests generally associated with containerised imports, with those of regulated status considered to be of low biosecurity risk. The exception was a single interception of a high risk organism, the long-horned crazy ant (*Paratrechina longicornis*), on a consignment of PKE from the Solomon Islands in March 2013. This interception was detected on arrival by an MPI inspector and the imported containers of PKE were fumigated to kill this pest.

Pest contamination problems for imports of plant-based stockfeed have been known to exist on occasion with bulk product in containers that have had a build-up of moisture within the vicinity of the container doors during transit. Importers are given the option of pest identification to see if the intercepted pests are regulated or not, or fumigation. The usual situation is for importers to request fumigation without pest identification, as this is usually made to speed up delivery and avoids the cost of identification.

The most common interception is flies from within the Diptera order, of which some are regulated species, although the economic and environmental risk of the vast majority of these species is likely to be low to negligible. The most common species intercepted on PKE imports is the Diptera fly, *Megaselia scalaris*. New Zealand's regulatory status of this species was re-assessed in 2012, and was changed from regulated to non-regulated, as this species was unlikely to have a significant impact to New Zealand. This species can be difficult to identify down to species level, so there have been frequent occasions where the organism is only identified to genus level (i.e. *Megaselia* sp.). In these cases, MPI consider that the organism is regulated due to some other Megaselia species being regulated and appropriate action is taken on arrival, such as fumigation of the consignment.

Efforts to reduce the potential incidence of hitchhiker pests on PKE from Papua New Guinea and the Solomon Islands have been relatively successful since late 2013 through the introduction of additional cleanliness requirements for shipping containers, such as the introduction of the Sea Container Hygiene System (SCHS) at the port of Kimbe in Papua New Guinea. This port is the source of all current PKE exports to New Zealand from Papua New Guinea.

All information to date suggests that the interceptions of live pests on containerised PKE found during mandatory inspection by MPI on arrival in New Zealand have been dealt with appropriately using methyl bromide fumigation. There has been no detection to date of regulated pests associated with PKE after biosecurity clearance at the New Zealand border. Further there have been no animal diseases detected in New Zealand as a result of the import and use of PKE.

4.6 Pathway Assurance Audits

MPI conducts ongoing reviews of pathways where necessary for providing quality assurance of products arriving at the New Zealand border, and the outcome of these audits can include an urgent amendment to an IHS where considered necessary.

As part of the normal audit process for an IHS, MPI has previously conducted audits of PKE processing and storage facilities in Malaysia in 2006, 2009 and twice in 2013. The MPI auditors inspected and reviewed PKE processing and storage facilities and met with government officials, exporters and facility managers.

During these visits there was no evidence to suggest that there is high risk of palm kernel being contaminated through contact with animal material, or any other biological contamination or soil. However, as noted earlier, New Zealand's Import Health Standard was urgently amended in June 2013 to require approved exporting countries to formally audit and approve PKE facilities to ensure that import requirements (security of PKE post production) are being maintained and to provide assurance that appropriate oversight of the export supply chain is occurring.

This audit will also input into the wider review of the IHS for all processed plant-based animal feeds, including PKE, to ensure the requirements appropriately manage the biosecurity risk associated with these products. The IHS review is programmed to be completed later in 2015.

5 Audit Visit

MPI visited Malaysia between 2nd of May and 6th of May 2013. During this time, MPI met with the DOA in their capacity as the NPPO of Malaysia, and visited a number of PKE manufacturing facilities, storage facilities and ports of loading to review the security of the supply chain for PKE to avoid contamination with sources of potential biosecurity risk.

The full audit schedule is listed in Appendix 2. A map of Malaysia showing the areas visited is in Appendix 3.

The audit was exceptionally thorough. The approach used was to audit the activities of the NPPO in providing oversight of export systems, the audit and approval process for registering facilities for export to New Zealand, and the phytosanitary certification process. A sample of facilities to verify or 'ground-truth' the export system. Prior to the visit, MPI

identified specific facilities to audit from the list of 30 facilities in Malaysia approved for export to New Zealand. This list of facilities included facilities that were visited in May 2013 by the MPI officials and not initially recommended for approval (i.e. required improvements), as well as facilities that have not been previously visited by MPI officials.

5.1 Audit Criteria

This audit focused on two aspects - the oversight provided by the exporting NPPO, and the facilities approved for export of PKE to New Zealand. A copy of the terms of reference for the audit is provided in Appendix 4.

The following questions were used to assess the suitability of the systems and processes used by the NPPO for the export of PKE:

1. Are the procedures used by DOA for the audit and approval of facilities for export to New Zealand sufficient to ensure PKE is sourced only from supply chains where all the facilities and transportation systems used will mitigate any potential biosecurity risks?

2. Are the DOA procedures for the production of phytosanitary certificates and export phytosanitary inspection meeting New Zealand's requirements and expectations?

3. Do the DOA procedures verify that all PKE shipments are fumigated correctly to meet New Zealand's import requirements?

As part of the amendment to the Import Health Standard in 2013, MPI provided guidance to NPPOs of approved exporting countries in their development of criteria for the audit and approval of PKE facilities for export to New Zealand. The recommended criteria are listed in Appendix 5.

As indicated earlier, the auditor selected a range of facilities to visit across three different regions in Malaysia - Klang, Johor Bahru and Bintulu. This was used to verify that the systems in place to manage the biosecurity risk associated with the production and post-production storage and transportation for export are being managed appropriately by Malaysia's DOA and the relevant DOA staff in each state.

5.2 Entry Meeting

5.2.1 Participants

The New Zealand officials met with the following officials from the DOA, Malaysia:

Malaysia	**Department of Agriculture**
Faridah Aini Bt Muhammad	Director, Plant Biosecurity Division
Yusof Othman	Deputy Director, Plant Biosecurity Division
Ho Haw Leng	Deputy Director, Plant Import and Export Control Section
Che An Mohd Joned	Assistant Director, Plant Import and Export Control Section
Tony Nyanau	Assistant Director, Plant Import and Export Control Section

Normala Manaf	Assistant Director, Plant Protection & Quarantine Section (Johor Bahru)
Gasing Nyalau	Assistant Director, Plant Protection & Quarantine Section (Sarawak)
Florence Ginibun	Principal Assistant Director, Planning, Information Technology and Communication Division
New Zealand	**Ministry for Primary Industries**
Shane Olsen	Manager, Plant & Forestry
Gemma Cornelissen	Second Secretary, New Zealand High Commission, KL
Matt Ritchie	Trade Commissioner, New Zealand Trade & Enterprise, KL

5.2.2 Agenda

The entry meeting covered the following items:

- Introductions
- Purpose of the visit
- Agreement on schedule
- Clarification of DOA activities

The MPI official outlined the purpose of the visit which was as a follow up to audits completed in May 2013 and to ensure the systems operated by Malaysia's DOA are meeting New Zealand's import requirements.

Malaysia DOA operates two parallel systems for the issuing of phytosanitary certificates accompanying exports of PKE; end-point inspection by DOA officials, and DOA approved facilities with trained inspectors.

DOA operates three committees for the oversight of exports:

I. NPPO main committee, the decision-making body
II. NPPO technical committee, responsible for assurance and training
III. NPPO audit committee, oversight of audit activities.

Prior to the visit, DOA provided the following documents which cover the phytosanitary system and procedures specifically for certification of PKE exports to New Zealand:

- Work Instruction: Phytosanitary Certification for Exports of Palm Kernel Expeller (PKE)/Palm Kernel Meal (PKM)/Palm Kernel Cake (PKC)/Palm Kernel Pellets (PKP) to New Zealand. This document provides an overview of the instructions and procedures for phytosanitary certification and facility approval for PKE exports to be carried out by the relevant DOA state department (refer to Appendix 6).
- Flow Chart A: Procedure for Approving Facility for PKE Exports to New Zealand (refer to Appendix 7)
- Flow Chart B: Procedure on Issuance of Phytosanitary Certificate for Exports of PKE (refer to Appendix 8)
- Annex PKE 1/2014: Audit Checklist on PKE Facilities
- Annex PKE1A/2014: Corrective Actions by Facility for PKE Export Compliance to New Zealand
- Annex PKE1B/2014: Verification of Corrective Actions

- Annex PKE2/2014: Audit Report on PKE Facilities for Export Certification to New Zealand
- Annex PKE2A/2014: Audit Report (Corrective Actions) on PKE Facilities for Export Certification to New Zealand

NPPO approves facilities for export of PKE following an audit conducted by the DOA's officer in the relevant state and approval by the NPPO approval committee. The process provides ongoing approval subject to regular audits conducted approximately every 6 months.

PKE facilities may also choose to become registered to the Malaysian Phytosanitary Certification Assurance Scheme (MPCA) scheme. The audit for approval (export of phytosanitary goods) to the MPCA scheme covers at least the following aspects:

I. Whole process flow chart
II. Records of in-feed
III. Staff training
IV. Quality control measures

All audits for phytosanitary purposes are conducted by the DOA staff in the specific state or region. Third party audits are not used.

The DOA officials provided an overview of audits over the past 12 months, which outlined that there had been a total of 23 audits of PKE facilities conducted, including 19 surveillance audits and 4 audits associated with approvals of 4 new facilities. There have been several non-compliances at facilities audited that required follow up actions, with the majority in regards to required improvements for netting around facilities to prevent the entry of birds. The usual period for corrective actions in these cases is one month. A verification audit is undertaken by DOA to verify that any corrective action has been successfully carried out.

The source of any product must be checked prior to a phytosanitary certificate being issued. If PKE facilities choose to become registered to the MPCA scheme, phytosanitary inspection of PKE by a DOA officer for every consignment is not undertaken. DOA will undertake physical inspections of the product at random to ensure the product complies with the requirements of the importing country.

For PKE facilities that are not registered to the MPCA scheme, inspection is undertaken for every consignment prior to a phytosanitary certificate being issued. End-point inspections are conducted during loading of vessels. Loading of bulk vessels can take between three days and two weeks to complete.

The DOA officials demonstrated good knowledge of New Zealand's requirements for PKE, particularly since the introduction of additional requirements in June 2013. The officials understood the importance of the PKE trade, and the necessity to ensure that PKE exports from Malaysia stringently met New Zealand's IHS requirements.

5.3 Summary of Key Findings

5.3.1 NPPO Oversight, including Audit & Approval Process

DOA has very good oversight of the phytosanitary activities associated with PKE exports to New Zealand, especially since the implementation of the revised Import Health Standard requirements in 2013. There is significant oversight of the export process by DOA from warehouse storage to vessel loading. DOA conduct phytosanitary activities, including the auditing and approval of PKE facilities, phytosanitary inspection and certification, and the supervision of treatments.

MPI discussed the DOA audit process for approving facilities and found the procedures to be excellent. All PKE exported to New Zealand must be produced at DOA registered PKE facilities and only pass through approved facilities prior to export. DOA still use the criteria and checklists provided by MPI in 2013 to assist them in the audit and approval of PKE facilities. The DOA work instruction, including the facility audit and approval procedures, are reproduced in Appendix 6.

DOA maintain and regularly update a list of approved PKE facilities and this list is maintained on their website. MPI and New Zealand importers use this list to ensure that only product sourced from registered facilities is shipped to New Zealand, and given clearance on arrival in New Zealand assuming the shipments meets all the requirements of the Import Health Standard, including no detection of pests, disease or contaminants during physical inspection by MPI officers.

The phytosanitary inspection procedures used by the DOA meets the New Zealand requirements for the issuance of phytosanitary certificates and as in New Zealand, is based on the International Standards for Phytosanitary Measures (ISPM) 8 and 12. The phytosanitary inspection is conducted by staff trained in the identification of pests and disease.

5.3.2 PKE Facilities

MPI officials visited 12 PKE manufacturing facilities around Malaysia, as well as the port facility at Bintulu. All 12 facilities are approved for the export of PKE to New Zealand and the vast majority of these facilities have exported PKE to New Zealand in the past few months.

The following is the list of facilities visited:

- Lee Oilmills, Klang
- Kilang Isi Sawit Sin Huat Hin, Klang
- Sime Darby, Klang
- Sehcom Industries, Johor Bahru
- PGEO Oil Mill, Johor Bahru
- Hok Huat Mill, Johor Bahru
- Premium Vegetable Oils, Johor Bahru
- Jin Lee Oilmills, Johor Bahru
- SOP Edible Oils, Bintulu
- Bintulu Edible Oils, Bintulu

- Kirana Palm Oil Refinery, Bintulu
- Sime Darby Austral, Bintulu

Since 2013, MPI officials have now visited 20 of the 30 PKE facilities approved to export PKE to New Zealand, as well as the vast majority of the port facilities used in the export of PKE.

The MPI official found that all 12 PKE facilities visited during this audit met the requirements for New Zealand's IHS in so far as that the facilities are:

- dedicated to the production of plant based products only, and that does not expose to any source of contamination from animal products before processing;
- have measures in place to keep PKE free from contamination by any unprocessed plant material, vermin, birds, faecal material and other animal products and visually detectable regulated pests;
- are fully fenced and stock-proof;
- substantially bird-proof storage warehouses, and
- transport PKE to the exit port prior to loading in a manner to prevent contamination with any unprocessed plant material, vermin, birds, ruminant animals, faecal material and other animal products.

The auditor found that DOA has fully implemented the system dictated in the work instruction at each of the facilities visited, and operates an audit and approval system in each region to ensure the facilities are fully meeting New Zealand's IHS requirements. DOA officials have audited each of the PKE manufacturing plants visited within the past six months as part of the audit and approval process in place for PKE exports to New Zealand (as defined in DOA's work instruction).

The MPI official noted that a regular auditing programme conducted by DOA is important and should be maintained to ensure the facilities effectively meet the IHS requirements. This is to ensure that the PKE storage warehouses maintain being substantially bird-proof, with suitable bird netting in place for all doors and gaps in the storage warehouses, maintain good practices in regards to cleanliness inside and around the PKE storage areas to mitigate from any potential contamination, and also to maintain awareness for PKE facility staff of the need to maintain high standards for the export of PKE to New Zealand.

For example one facility near Port Klang was found to have a small amount of PKE spilling just under the bird netting at each door due to the facility being very full. While this was not considered a non-compliance as the facility met all the requirements, the auditor suggested that a follow up with the individual facility would be advantageous to ensure that the PKE was maintained within the bird netting and storage warehouse at all times.

In addition, it was also identified that regular auditing will ensure good practices are in place for managing and mitigation against potential sources of contamination. For example, one facility in Johor Bahru maintains one very large warehouse for the crushing of palm kernels and copra and maintains separation of raw products (palm kernels and copra) from finished product. However, during the visit it was identified and recommended that a larger and

more significant physical barrier would be better practice to further reduce the risk from contamination of the PKE intended for export.

Another justification for DOA continuing a regular auditing programme was to ensure that any new storage areas used by the facilities are also audited to ensure compliance with New Zealand's standards. Two of the facilities visited are in the process of developing new PKE storage areas at the facilities in addition to their current storage warehouses. It is not known whether the new storage warehouses currently under construction will meet New Zealand's requirements, despite the facilities being approved for export to New Zealand.

5.3.3 Transport and Loading at Port of Exports

Secure transport (from production to the storage warehouse, and to the port of loading) is an important component in the supply chain and a potential source of contamination. No evidence was found indicating significant risk in this area. The production of palm oil, and the most valuable commodity palm kernel oil, is a very large industry in Malaysia. The MPI officials found that all facilities used dedicated transport for either PKE exclusively, or in some cases palm based products.

All facilities visited had appropriate controls to ensure freedom from contamination during transport, including having staff visually inspect trucks before loading. All facilities had procedures in place to ensure that trucks were rejected from being used for the transport of PKE that were not fully clean.

At the three regions visited, two ports (Klang & Johor Bahru) operate a dedicated PKE port terminal with a conveyor system. In addition to DOA staff who inspect product during the loading for export, shipping surveyors are used to supervise loading and to ensure no contamination of the PKE occurs. At Bintulu, the four PKE facilities have dedicated PKE conveyors stored at port side which are used to load the PKE into vessels.

5.3.4 Fumigation

Fumigation activities are supervised by DOA staff when conducted at a Malaysian port to ensure it meets the requirements of New Zealand's Import Health Standard. The fumigant used is phosphine, which is widely used around the world and is known to be effective against stored product pests in bulk grain and feed supplies.

Phosphine fumigation is undertaken usually at the last point of departure prior to export to New Zealand when the vessel is fully loaded. Where PKE is sourced and loaded into a single vessel in Malaysia and Indonesia, both countries have an understanding that the required fumigation will take place in the last port before departure. Importers and suppliers also support and enforce this arrangement to ensure each shipment meets New Zealand's import requirements, as it is the optimal point to conduct fumigation operationally and commercially given the significant volume of PKE in single shipments and given the difficulty in fumigating large shipments within port facilities prior to export or on arrival.

All fumigation for PKE exports is conducted by DOA-approved fumigation providers who are also Australian Fumigation Accreditation Scheme (AFAS) accredited suppliers. The AFAS scheme is a joint Australia/New Zealand scheme for accreditation of fumigation suppliers in Asia and the Pacific who fumigate product for export. The fumigation providers are audited by Australia's DOA (or MPI personnel) to ensure compliance with AFAS.

5.4 Exit Meeting

5.4.1 Participants

The New Zealand officials met with the following officials from the DOA, Malaysia:

Malaysia	**Department of Agriculture**
Faridah Aini Bt Muhammad	Director, Plant Biosecurity Division
Ho Haw Leng	Deputy Director, Plant Import and Export Control Section
Che An Mohd Joned	Assistant Director, Plant Import and Export Control Section
Tony Nyanau	Assistant Director, Plant Import and Export Control Section
Gasing Nyalau	Assistant Director, Plant Protection & Quarantine Section (Sarawak)
Florence Ginibun	Principal Assistant Director, Planning, Information Technology and Communication Division
New Zealand	**Ministry for Primary Industries**
Shane Olsen	Manager, Plant & Forestry
Gemma Cornelissen	Second Secretary, New Zealand High Commission, KL
Kimberly Martin	Policy Advisor, New Zealand High Commission, KL

5.4.2 Agenda

The exit meeting was primarily used to discuss the findings from the visit by the MPI official, including to provide any potential recommendations and non-compliances requiring corrective actions by DOA.

5.4.3 Summary of Findings

The MPI official presented the following findings:

1. The DOA system and procedures in place covering the phytosanitary certification and auditing and approval of PKE facilities for export to New Zealand fully meets New Zealand's requirements.

2. The DOA system covering the phytosanitary certification and auditing and approval of PKE facilities has been implemented very well in the states visited. The ongoing programme of auditing PKE facilities approximately every 6 months to ensure

continued compliance is effective in identifying any non-compliances and ensuring PKE facilities undertake corrective actions.

3. All the PKE manufacturing and storage facilities visited during the audit met New Zealand's import requirements for PKE supply chain security.

4. The systems and processes used by the National Plant Protection Organisation (NPPO) of Malaysia (DOA) for phytosanitary certification and inspection are very good and fully meet New Zealand's requirements. The certification and fumigation procedures fully meet New Zealand's requirements.

5. A continued programme of auditing as currently conducted by DOA is required to ensure the suitability of all facilities used in the supply chain to meet New Zealand's import requirements.

6. Based on these audits, the risk assessments previously completed including for FMDV, and the current requirements in the IHS with the proposed amendments, MPI considers that the biosecurity risk from the import of PKE remains very low. While concerns about contamination of PKE have been raised by stakeholders, there is an extremely low potential for harmful pests or diseases to become associated with PKE prior to or during shipment to New Zealand. There have been no detections of regulated pests or disease found in PKE imports following clearance in New Zealand despite the large number of imports over the past decade.

6 Recommendations and Actions

The following recommendations and actions are proposed based on the audit visit to Malaysia to review the systems and processes used by Malaysia's DOA to meet the requirements of the IHS for the export of PKE to New Zealand.

That Malaysia's DOA operating as the NPPO:

6. Maintains the current system for auditing and approving PKE manufacturing and storage facilities to ensure approved facilities continue to fully meet the export requirements for New Zealand.

7. Audits any new storage warehouses operated by the PKE facilities prior to their use for storing PKE for export to New Zealand to ensure full compliance with New Zealand's standards.

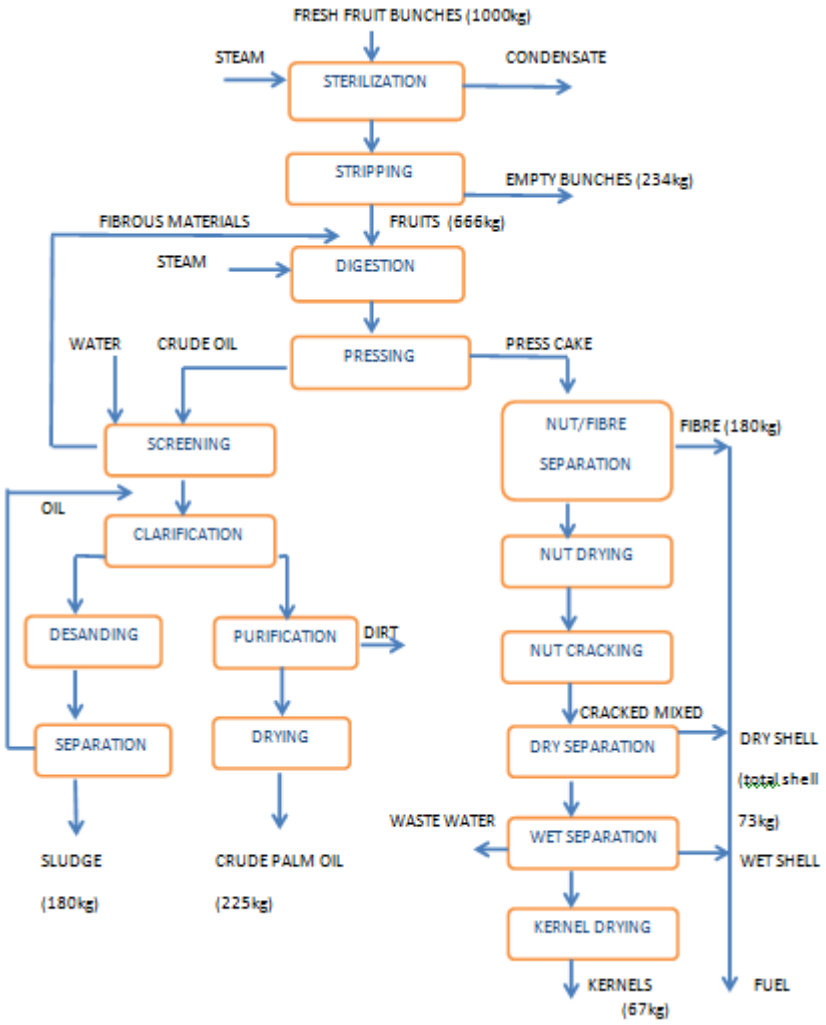
8. Maintains and updates (where required) the list of approved facilities on the DOA website to ensure MPI and all parties know those facilities that are approved for exporting PKE to New Zealand.

9. Updates the list of approved facilities on the DOA website to include PKE port terminal facilities as per Section 6.3.1 of the DOA's Work Instruction (refer to

Appendix 6), or alternatively, revises Section 6.3.1 to state that port terminal facilities do not require to be published on the DOA website as they do not produce or trade PKE for export.

7 Appendices

Appendix 1: Palm Oil and PKE Production Process



Appendix 2: PKE Audit Schedule (2-6 March 2015)

Date	Time	Activities	Venue	Notes
2/03/2015 Monday	8.30 am	Opening Meeting with NPPO at HQ in Kuala Lumpur (KL)	Plant Biosecurity Division's office	Officers involved in export certification of PKE to New Zealand – i. HQ ii. Selangor iii. Johor iv. Perak v. Pahang vi. Sabah vii. Sarawak
	12.00 pm	Audit in Port Klang - 3 facilities	1. Lee Oilmills 2. Kilang Isi Sawit Sin Huat Hin 3. Sime Darby	HQ Officials and Port Klang's Officers
	7.45 pm	Travelling Flight KL- Johor Bahru (JB)		
3/03/2015 Tuesday	8.30 am	Audit in Johor Bahru	1. Sehcom Industries 2. PGEO Oil Mill 3. Hok Huat Mill 4. Premium Vegetable Oils	Johor Bahru's Officers
4/03/2015 Wednesday	8.40 am	Travelling Flight JB-KL-Bintulu, Sarawak		
	2.00 pm	Audit in Bintulu - 2 facilities	1. SOP Edible Oils 2. Bintulu Edible Oils	Sarawak Department of Agriculture
5/03/2015 Thursday	8.00 am	Audit in Bintulu -2 facilities	3. Kirana Palm Oil Refinery 4. Sime Darby Austral	Sarawak Department of Agriculture
		Travelling Flight Bintulu-KL		
6/03/2015 Friday	10.00 am	Exit Meeting	Plant Biosecurity Division's office	Officers involved in export certification of PKE to New Zealand – i. HQ ii. Selangor iii. Johor iv. Perak v. Pahang vi. Sabah vii. Sarawak

Appendix 3: Map of Malaysia

Appendix 4: Audit Terms of Reference

1. Scope

To assess the PKE export pathway to ensure that an appropriate pre-export system is in place to manage the risks from pest and disease from Malaysia to New Zealand.

2. Assessment Team

Dr Shane Olsen, Manager, Plant & Forestry, Import & Export Plants

3. Overview of processes to be assessed

The following questions were used to assess the suitability of the systems and processes used by the NPPO for the export of PKE:

1. Are the procedures used by DOA for the audit and approval of facilities for export to New Zealand sufficient to ensure PKE is sourced only from supply chains where all the facilities and transportation systems used will mitigate any potential biosecurity risks?
2. Are the DOA procedures for the production of phytosanitary certificates and export phytosanitary inspection meeting New Zealand's requirements and expectations?
3. Do the DOA procedures verify that all PKE shipments are fumigated correctly to meet New Zealand's import requirements?

The specific processes to be observed are listed below:

- reviewing the auditing and approval processes used by DOA to approve PKE facilities for export to New Zealand
- reviewing the phytosanitary certification and inspection processes used by DOA
- reviewing the security of the supply chain from production to shipping to reduce the likelihood of:
    - infestation by regulated pests,
    - contamination by vectors capable of transmitting animal diseases, and
    - contamination by other regulated articles that may be a risk to animal health and welfare.
- verifying that the assurances provided by Malaysia on certification are accurate for PKE consignments exported to New Zealand.

Appendix 5: Recommended Criteria for PKE facilities

The following criteria was recommended to NPPO's for consideration in their development of appropriate procedures for the audit and approval of PKE facilities for export to New Zealand:

1. Factory processes ONLY palm kernels
2. Factory ONLY processes plant products
    a. Consider separation of product
    b. Consider separation of raw and processed product
3. Factory is securely fenced –no stock can get into the factory area
4. Factory well maintained
    a. Clean and tidy surrounds
    b. No rubbish
    c. No waste areas
5. Factory area paved, sealed
6. No domestic pets (cats, dogs)
7. Appropriate pest management activities
8. Appropriate bird control activities
9. Clean storage areas for PKE
10. Concrete/sealed floors
11. Truck inspection before loading
12. Covered loads
13. Use of loaders for raw and processed products
14. Operating system – does it include biosecurity?
15. Operating system – does it include contamination?
16. Evidence the manager understands importance of animal feed

Appendix 6: Malaysia's Department of Agriculture Work Instruction

WORK INSTRUCTION

Phytosanitary Certification for Exports of "Palm Kernel Expeller" (PKE) / "Palm Kernel Meal" (PKM) / "Palm Kernel Cake" (PKC) / Palm Kernel Pellets (PKP) To New Zealand

CONTENTS

FLOW CHARTS

ANNEXES

1. OBJECTIVE

The procedure was prepared for the implementation of phytosanitary certification for exports of Palm Kernel Expeller (PKE), Palm Kernel Meal (PKM), Palm Kernel Cake (PKC) and Palm Kernel Pellets (PKP) from Malaysia to New Zealand and other countries.

2. REFERENCE

The following "Standard" is to be used and referred for compliance to the import conditions imposed for exports of processed animal feed from plant origin into New Zealand.

BIOSECURITY NEW ZEALAND (PLANTS) STANDARD
BNZ-PAFP-IMPRT
Importation into New Zealand of Processed Animal Feeds of Plant Origin
(Issued as an Import Health Standard (IHS) pursuant to Section 22 of the Biosecurity Act 1993 by MAF Biosecurity New Zealand)

3. INTRODUCTION

Phytosanitary certificates (PC) are issued for exports of PKE, PKM and PKC as compliance to the importing country's requirements. The importing country's requirement differs from one country to another, whereby some require specific additional declarations in the PC.

Issuance of PC for exports to countries that do not require specific additional declaration such as the EU, Vietnam and the Middle East would require an end point visual inspection on final product. However, for countries requiring specific additional declaration or compliance to export protocol, the exporting country needs to evaluate on the measures that have to be implemented to fulfill the declaration or protocol. It can be an end point inspection on final product, a laboratory analysis or registration of export facilities which involves inspections on processor's facility, storage at processor's facility, transportation and port terminal storage.

4. CATEGORY OF PROCESSED ANIMAL FEED

In Malaysia, animal feed are oil palm based products. The products are as follows :

4.1 Palm Kernel Expeller (PKE), Palm Kernel Meal (PKM), Palm Kernel Cake (PKC) and Palm Kernel Pellets (PKP)

The products above are by-products from the extraction of oil from the palm kernel. The crushed pulp in the form of powder is known as PKE. Meal, cake and pellet are PKEs in different physical forms.

4.2 Product from Palm Oil Derivatives

Example : Calcium salts of Palm oil fatty acid, Palm fatty acid distillates, Calcium hydroxide

Product are manufactured from palm oil derivatives and is not a by product from the oil palm plant.

For purpose of using this Guideline on Procedure for Exports of PKE, the terminology on PKE refers to the category of animal feed stated in 4.1.

5. IMPORT CONDITIONS

5.1 Import Health Standard New Zealand

5.1.1 Palm Kernel Expeller, Meal, Cake and Pellets

Exports to New Zealand require a Phytosanitary Certificate with Additional Declaration. The NPPO of the exporting country is required to certify as Additional Declaration that the following activities have been carried out. These products are exported in packaging comprising of jumbo bags or in bulk.

"The _____ (product) in this consignment has:
been processed in a facility dedicated to the production of plant based products only, that produces no compounded feed containing animal ingredients and has not been exposed to any source of contamination from animal products before processing

AND

Undergone processing that has incorporated a heat application that has raised the core temperature of the product to at least 85ºC for a minimum of 5 minutes.

OR (for pelleted products only)

Undergone a pelleting process which has reached at least 85ºC for a minimum of 30 seconds

AND

Been inspected and contains no viable seeds.

AND

(a) For product shipped bulk in ships' holds or in containers:

- been inspected after processing in accordance with appropriate official procedures, and found free from contamination by any unprocessed plant material, vermin, birds, faecal material and other animal products and visually detectable regulated pests.

AND

- been stored in substantially bird-proof buildings or bird-proof storage houses, and transported to the exit port prior to loading, in a manner to prevent contamination with any unprocessed plant material, vermin, birds, ruminant animals, faecal material and other animal products.

(b) For product shipped in bags:

- been bagged in clean new bags immediately after processing and the bags stored in a manner to prevent infestation and contamination."

5.1.2 Product from Palm Oil Derivatives

The processed product are in the form of powder, granules or liquid from the derivatives of palm oil, packed in clean or retail bags. Phytosanitary Certificate is not required for exports to New Zealand.

5.2 Other Countries

Issuance of Phytosanitary Certificate without Additional Declaration for Palm Kernel Expeller, Meal, Cake and Pellets.

6. PROCEDURE ON PHYTOSANITARY CERTIFICATION FOR PKE EXPORTS TO NEW ZEALAND

6.1 Conditions

1. Phytosanitary Certificates for exports of PKE to New Zealand is only issued to facilities approved by the Department of Agriculture Malaysia as compliance to the import conditions imposed by MPI New Zealand.

2. All facility involved in the production and export chain of PKE including processing facility, storage facility, warehouse, storage and loading facility at port terminals are required to be audited and approved by the Department of Agriculture Malaysia prior to issuance of the Phytosanitary Certificate to ensure these facilities comply with New Zealand's import conditions.

3. Application for a Phytosanitary Certificate could only be processed once the name of the approved facility has been uploaded in the Department of Agriculture Malaysia's website.

6.2 Category Of Approved Facility

The categories of approved facilities are as follows :

1. Processing facility are facilities that processed the raw palm kernel into the by- product PKE and have storage facility for exports.

2. Port terminal storage are storage facilities at the port. PKE is transported to the storage facility to be stored for loading into ships.

3. "Trader" facility are storage facilities owned by individuals or exporters who carry out trading by sourcing PKE from many processing facilities. In this case, audit has to be carried out on all processing facilities supplying PKE to the trader's facility and approval given before this facility can export.

6.3 Procedure for Approving Facility For PKE Exports To New Zealand

6.3.1 Processing Facility / Port Terminal Storage

All facility involved in the production (processors) and exports (port terminal /trader's storage facilities) are required to obtain facility approval and listing in the Department of Agriculture's website before exports of PKE could be carried out to New Zealand

Refer **Flow Chart A** on Procedure of Approving Facility for PKE Exports to New Zealand

6.3.2 Trader

For approval of Trader facility, traceability on the product chain beginning from the processing facility requires verifications to be carried out on the following aspects:

i) For supply of PKE from processing facilities that have been approved by the Department of Agriculture Malaysia, the Purchasing

Agreement between the trader and supplier needs to be verified with both parties to ensure the authenticity of the document.

ii) For supply of PKE from non approved processing facilities, audit on the processing facility has to be carried out as in Flow Chart A. The Purchasing Agreement between the trader and supplier needs to be verified with both parties to ensure the authenticity of the document.

6.4 Procedure on Issuance of Phytosanitary Certificate for PKE Exports to New Zealand

Refer **Flow Chart B** for Procedure on Issuance of Phytosanitary Certificate for PKE Exports to New Zealand.

6.4.1 Processing Facility / Port Terminal Storage

Other than the facility approval required from the Department of Agriculture, the phytosanitary certification procedure will involve application and inspection of consignment for the issuance of the Phytosanitary Certificate. Phytosanitary Certificate is issued once the consignment has been inspected. Inspection is carried out for every application for the Phytosanitary certificate. As for the facility, inspection is carried out once in six months (February and September).

For facilities in the MPCA Scheme, consignments are randomly inspected, while the facilities are still required to be inspected once in six months.

6.4.3 Trader

The Phytosanitary export procedure for Trader facility is as stated in 6.4.1 with the following additional verification requirements:

i) Every application for the Phytosanitary Certificate is to be accompanied with the *Manufacturer's Declaration Letter* (certified true copy) to ensure that the PKE supplier/suppliers comprised of processing facilities approved by the Department of Agriculture. Application for Phytosanitary Certificate which involved non approved supplier will be rejected.

ii) Ensure the quantity of consignment declared in the *Manufacturer's Declaration Letter* is the same as declared in the application for the Phytosanitary Certifcate. Discrepancy in quantity declared will be rejected.

The requirement for verification has to be complied before inspection can be carried out for the issuance of Phytosanitary Certificate. Inspection is carried out for every application for the Phytosanitary

Certificate. Trader and its processing facilities have to be inspected once in six months

For trader facility in the MPCA Scheme, consignments are randomly inspected, while the facilities are still required to be inspected once in six months.

7 AUDITS AND REPORTS

7.1 Facility Approval Audit

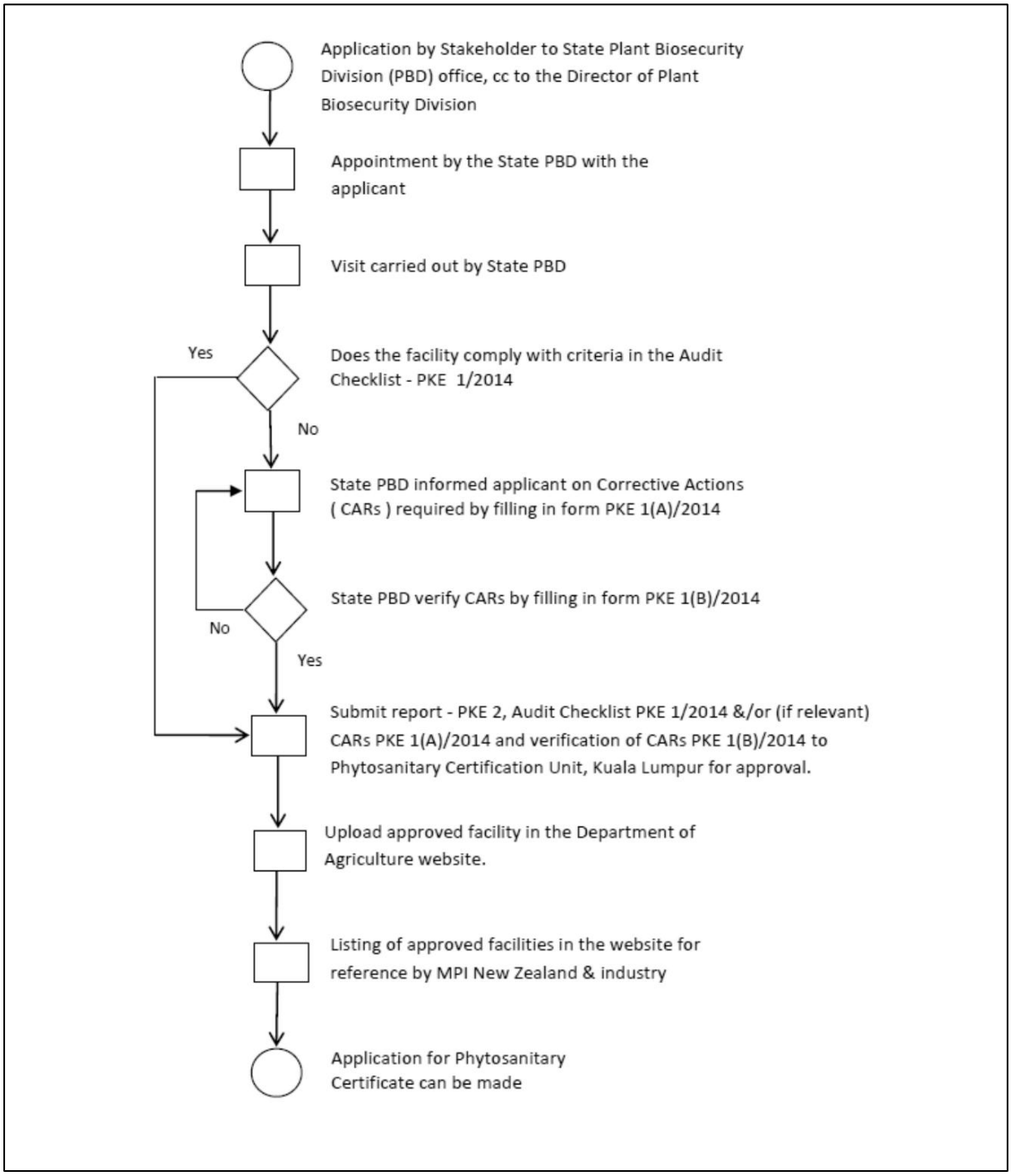
No.	Document	Application
1,	Audit Checklist PKE 1/2014	The Audit Checklist is used to assess compliance during the audit visit carried out on processing facility, storage facility in port terminals or trader facility. Facility has to obtain a 100% compliance to the audit criteria in the Checklist for approval.
2.	Corrective Action Requirements PKE 1(A)/2014	For facilities that do not achieved a 100% compliance to the audit criteria in the Checklist – PKE 1/2014, a Corrective Action Requirements PKE 1(A)/2014 is issued by the auditor to the Management of the facility for the necessary corrective actions.
3.	Verification on CARs PKE 1(B)/2014	The Auditor fills up the document to verify that the CARs have been completed by the Management of the facility.
4.	PKE Purchase Agreement between Processor & Trader	The document for proof of traceability of product between trader facility and approved processing facility.
5.	Audit Report PKE 2/2014	The report has to be completed with relevant informations and the Annexes PKE 1/2014 and PKE Purchase Agreement between Processor & Trader (if relevant) to be forwarded to Plant Biosecurity Division Kuala Lumpur (Phytosanitary Certification Unit) for approval.

No.	Document	Application
6	Re-Audit Report PKE 2A/2014 (CARs)	The report has to be completed with the relevant information and the Annexes PKE 1/2014, PKE 1(A)/2014, PKE 1(B)/2014 and PKE Purchase Agreement between Processor & Trader (if relevant) to be forwarded to Plant Biosecurity Division Kuala Lumpur (Phytosanitary Certification Unit) for approval.

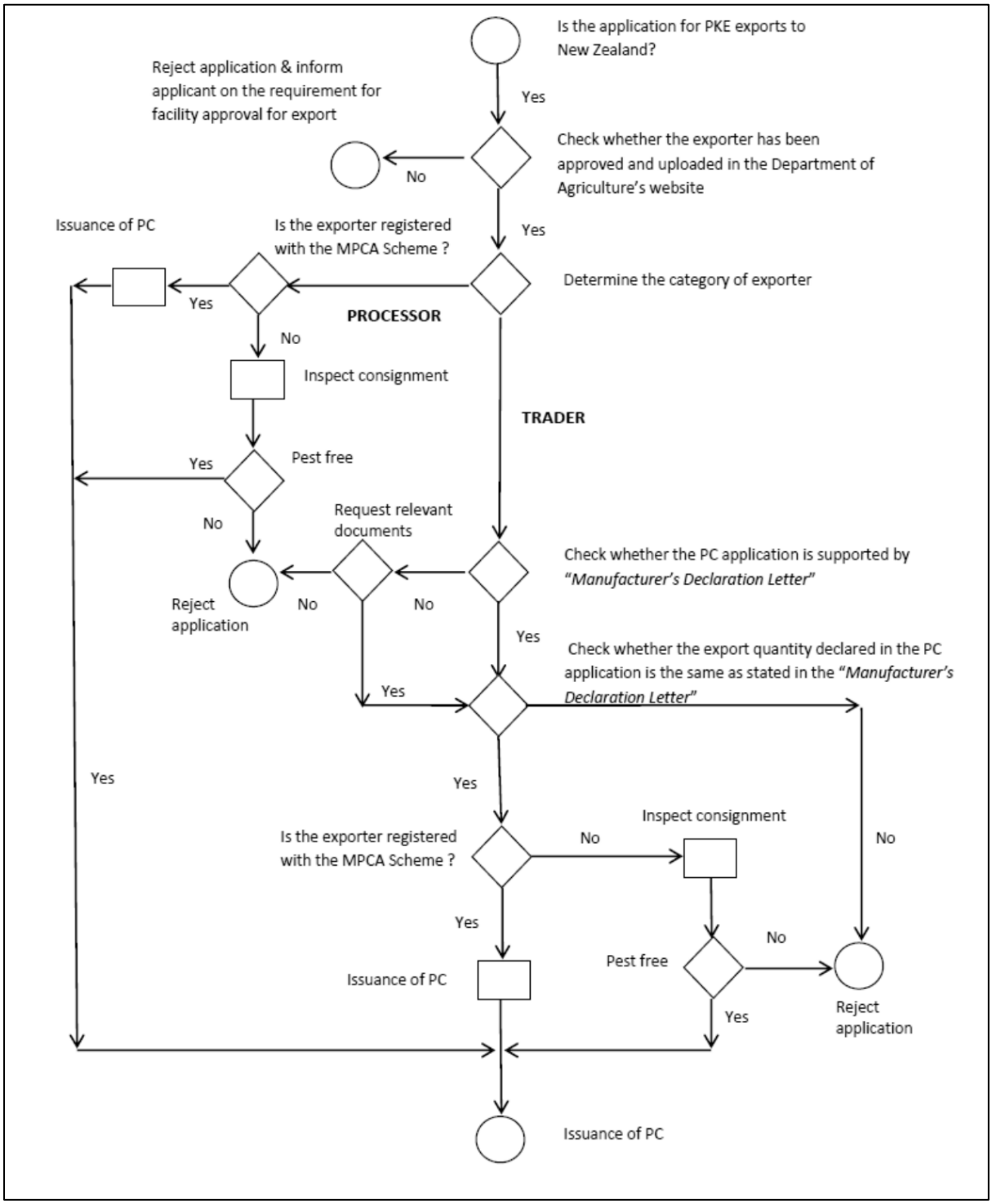
7.2 Surveillance Audit

The relevant documents and its applications are as in 7.1.

Appendix 7: Flowchart A – Procedure of Approving Facility for PKE Exports to New Zealand



Appendix 8: Flowchart B – Issuance of Phytosanitary Certificate for PKE Exports



Appendix 9: Photos of Facilities

Figure 4: PKE Storage Facility at Sime Darby near Port Klang

Figure 5: Repairs being done on wall of Kilang Isi Sawit Sin Huat Hin facility

Figure 6: Netting at Hok Huat Mill, Johor

Figure 7: Preventative measures while doors are open at Jin Lee facility, Johor

Figure 8: Spillage under doors at Kilang Isi Sawit Sin Huat Hin facility near Port Klang

Figure 9: PKE Storage Facility at SOP Edible Oils, Bintulu

Figure 10: Wall netting at Sehcom Industries, Johor

Figure 11: PKE loading conveyors at Bintulu Port