Ministry for Primary Industries
Manatū Ahu Matua

Importation of Palm Kernel Expeller from Indonesia

Indonesia Visit
8-13 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 Indonesia to New Zealand and to identify any gaps or deficiencies. An MPI official visited Indonesia between 8th and 13th of March to view the systems and procedures conducted by the National Plant Protection Organisation (NPPO) of Indonesia, Indonesia's Ministry of Agriculture (MOA) and the Indonesian Agricultural Quarantine Agency (IAQA), for the audit and approval of facilities for exporting PKE to New Zealand.

This visit served as a follow up visit to Indonesia to verify that appropriate systems and procedures conducted are in place for the audit and approval of facilities for exporting PKE to New Zealand since the Import Health Standard was amended in June 2013 to require PKE to only be exported from approved facilities in Indonesia.

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 8 PKE facilities in the regions of Panjang, Medan and Padang, accompanied by IAQA officials. The following critical findings and recommendations were identified.

1.1 Key Findings

1. The system and procedures developed by Indonesia's MOA/IAQA 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 MOA also fully meet New Zealand's requirements.

2. The oversight provided by MOA/IAQA on the PKE supply chain is more than sufficient to meet New Zealand's requirements. All provinces visited in Indonesia and their corresponding quarantine station 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 with a frequency of between 3 and 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 MOA/IAQA and several PKE facilities to ensure best practice was undertaken at each facility.

4. Based on this audit, the risk assessments previously completed including for foot and mouth disease (FMD) and the knowledge that FMDV is not present in Indonesia, 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 the MOA:

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. Provides guidance to PKE facilities operating in the Bandar Lampung region to ensure that appropriate pest control activities are undertaken at these facilities.

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

2 Definition and Abbreviations

NPPO	National Plant Protection Organisation
IAQA	Indonesian Agricultural Quarantine Agency
PKE	Palm Kernel expeller/extract or meal
MOA	Ministry of Agriculture
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 Indonesia to New Zealand. An MPI official visited Indonesia between 8th and 13th of March to view the systems and procedures conducted by Indonesia's Ministry of Agriculture (MOA) and the Indonesian Agricultural Quarantine Agency (IAQA), 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 Indonesia 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 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 purpose of the audit involves:

1. reviewing the auditing and approval processes used by MOA to approve PKE facilities for export to New Zealand
2. reviewing the phytosanitary certification and inspection processes used by MOA
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 Indonesia 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. In addition, the shell of the palm fruit is used as an energy source, including being exported from Indonesia to Japan and Korea for transformation into a carbon source.

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 Indonesia 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 few years, 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 over 2 million tonnes from January 2014 to December 2014. The greatest volumes of imports are from Indonesia and Malaysia which

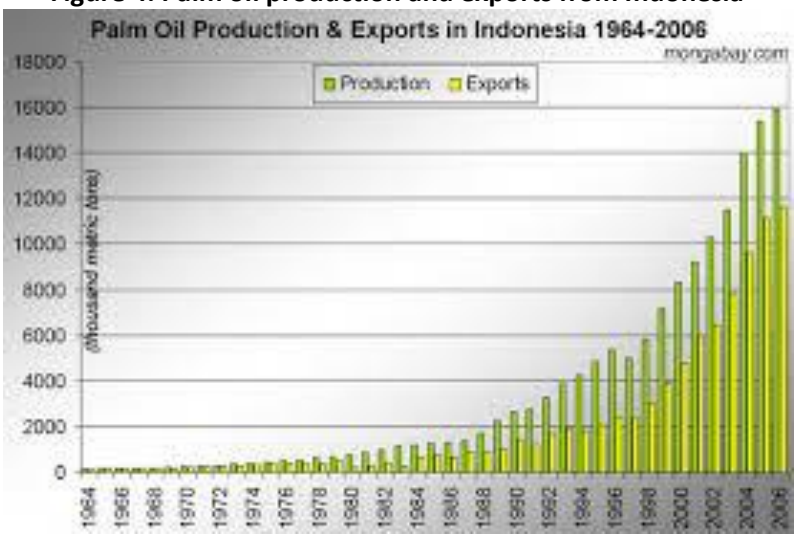
make up approximately 99% of the total volume imported into New Zealand. PKE is generally shipped from Malaysia and Indonesia to New Zealand in bulk vessels.

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%**

Indonesia is the world's largest producer of palm oil producing over 45% of total production. The current total plantation area covers 8 million hectares, and is expected to rise to 13 million hectares by 2020. Palm oil is the third biggest export earner for Indonesia. The biggest production area is Sumatra, but rapid expansion is occurring in the region of Kalimantan on the island of Borneo.

Figure 4: Palm oil production and exports from Indonesia



PKE is produced and used locally primarily as an animal feed. However, the largest volume of product is exported overseas. The PKE produced in Indonesia is exported around the world, primarily to Europe and New Zealand, as well as various Asian countries.

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 as absent from Indonesia. The official World Organisation for Animal Health (OIE) FMD situation for Indonesia (http://www.oie.int/?id=246) is recognised as FMD free, and where vaccination is not practiced.

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 has 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-confirms 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 IHSs, MPI has previously conducted audits of PKE processing and storage facilities in Indonesia in 2013. During these visits the 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, 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 Indonesia between 8th of May and 13th of May 2015. During this time, MPI officials met with officials from the Indonesian Agricultural Quarantine Agency (IAQA) within

the Ministry of Agriculture (MOA), the National Plant Protection Organisation (NPPO) for Indonesia. The MOA is the government agency responsible for plant quarantine including phytosanitary inspection and issuing phytosanitary certificates for plant products exported from Indonesia. In addition, the MPI official 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 Indonesia 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 17 facilities in Indonesia 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 MOA/IAQA 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 MOA/IAQA procedures for the production of phytosanitary certificates and export phytosanitary inspection meeting New Zealand's requirements and expectations?

3. Do the MOA/IAQA 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.

Prior to the visit, 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 IAQA are meeting New Zealand's import requirements.

The auditor selected a range of facilities to visit across three different regions in Indonesia – Panjang, Padang and Medan. 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 IAQA.

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

- IAQA Approval process 'Pedoman Sertifikasi Fitosanitari Palm Kernel Expeller (PKE) Tujuan New Zealand' This document provides an overview of the procedures for facility approval for PKE exports to New Zealand, which is carried out by the IAQA head office officials in Jakarta with support for auditing each facility from the local offices in each province.
- Verification checklist for PKE facilities under the IAQA Approval process (refer to Appendix 6)

5.2 Summary of Key Findings

5.2.1 NPPO Oversight, including Audit & Approval Process

MOA 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 MOA from warehouse storage to vessel loading. MOA conduct phytosanitary activities, including the auditing and approval of PKE facilities, phytosanitary inspection and certification, and the supervision of treatments.

MPI discussed the MOA audit process for approving facilities and found the procedures to be excellent. All PKE exported to New Zealand must be produced at MOA registered PKE facilities and only pass through approved facilities prior to export.

MOA 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 MOA 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.

5.2.2 PKE Facilities

MPI officials visited eight PKE manufacturing facilities on the island of Sumatra, which is the major area of PKE production in Indonesia, and the primary source of PKE for export to New Zealand. All eight facilities are approved for export to New Zealand and have exported PKE to New Zealand in the past few months.

The following is the list of facilities visited:

- PT. Sinarjaya Intl Mulya, Bandar Lampung
- PT. Aman Jaya Perdana, Bandar Lampung
- PT. Kurnia Tunggal Nugraha, Bandar Lampung
- PT. Usaha Intl Padang, Padang
- PT. Wira Inno Mas, Padang
- PT. Multimas Nabati Asahan, Kuala Tanjung
- PT. Musim Mas, Medan
- PT. Smart TBK, Medan

Since 2013, MPI officials have now visited 12 of the 17 PKE facilities (70%) 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 8 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.

All 8 facilities audited were dedicated to the production of plant based products only, and none were used for processing animal products. All the facilities maintained effective separation of raw material (palm kernels) from PKE, and have effective 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. All facilities were well maintained with good quality buildings and clean and tidy surrounds. All the facilities were fully fenced and stock-proof, and all had effective bird-exclusion systems.

The auditor found that MOA has fully implemented a system for the audit and approval system in each province to ensure the facilities are fully meeting New Zealand's IHS requirements. MOA officials have audited each of the PKE facilities visited within the past three months as part of the audit and approval procedure in place for PKE exports to New Zealand. MPI also found that PKE port terminal facilities, such as the terminal facility at the

port in Medan, are also audited as part of the process for approving PKE production facilities that are using this facility.

The auditor found that while pest control activities were undertaken at all facilities, there was a weakness at the three facilities visited at Bandar Lampung. Each of these facilities ran their own pest control activities, in contrast to most other PKE facilities in Indonesia and Malaysia that hire external specialised pest control companies to help with their activities. The three facilities did not have good knowledge of pest control practices, such as appropriate location of rodent traps.

The auditor also found that the PT. Kurnia Tunggal Nugraha facility visited at Lampung does not manufacture PKE and instead sources PKE only from the corresponding PT. Kurnia Tunggal Nugraha facility at Jambi. However, there was no complete evidence to confirm the traceability of all product in the facility is from the Jambi facility. The Lampung facility was able to provide evidence of the transfer of product from the Jambi facility to their facility at Lampung. MOA confirmed that the facility at Jambi has been audited and meets New Zealand's requirements[1].

The MPI official noted that a regular auditing programme conducted by MOA 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.

It was identified that regular auditing will ensure good practices are in place for managing and mitigation against potential sources of contamination. Another justification for quarantine officials 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.

5.2.3 Transport and Loading at Port of Export

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 Indonesia. 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.

[1] The Jambi facility was officially confirmed in written correspondence to MPI and added to the list of approved facilities by IAQA in May 2015.

In addition to IAQA staff who physically inspect product either at the facility prior to inspect or during the loading for export, shipping surveyors are used to supervise loading and to ensure no contamination of the PKE occurs. At Padang, the two PKE facilities have dedicated PKE conveyors stored at port side which are used to load the PKE into the vessels.

At Kuala Tanjung near Medan, the Wilmar company operating as PT. Multimas Nabati Asahan has its own port, and directly loads product using trucks to tip product into a loading bin connected to an automatic conveyor system. The conveyors have in-line magnetic separators to remove any metal objects prior to loading.

5.2.4 Fumigation

The fumigant used for PKE shipments to New Zealand 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.

Fumigation activities are supervised by IAQA officers when conducted at an Indonesian port to ensure it meets the requirements of New Zealand's Import Health Standard. MOA inspectors inspect and verify all applications of phosphine used for fumigating PKE exports to New Zealand. The fumigation section on the phytosanitary certificate is only completed and issued by the local MOA officer only when he/she is satisfied the fumigation process has been correctly applied and a fumigation certificate has been issued.

All fumigation activities for PKE shipments are conducted by only approved treatment providers approved by IAQA. These treatment providers are also accredited to the Australian Fumigation Accreditation Scheme (AFAS). 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 providers are audited by MOA, and Australia's MOA or MPI personnel from time to time.

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 Indonesia and Malaysia, 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.

5.3 Exit Meeting

5.3.1 Participants

The New Zealand officials met with the following officials from Indonesia's MOA/IAQA:

Indonesia	**Ministry of Agriculture**
Bambang Hesti Susilo	Division of Plant Quarantine Products, IAQA
Turhadi Noerachman	Division of Plant Quarantine Products, IAQA
New Zealand	**Ministry for Primary Industries**
Shane Olsen	Manager, Plant & Forestry

5.3.2 Agenda

The exit meeting was 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.

5.3.3 Summary of findings

The MPI official presented the following findings:

1. The MOA/IAQA 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 oversight provided by MOA/IAQA on the PKE supply chain is more than sufficient to meet New Zealand's requirements. All provinces visited in Indonesia and their corresponding quarantine station 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 with a frequency of between 3 and 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 MOA/IAQA and several PKE facilities to ensure best practice was undertaken at each facility. For example, it was identified that the three facilities visited in the Bandar Lampung region did not have good knowledge of pest control practices.

4. MPI are concerned that the PT. Kurnia Tunggal Nugraha facility at Jambi was not officially confirmed as meeting the PKE facility requirements for New Zealand. However it is noted that MOA/IAQA had confirmed that the Jambi facility had been audited and approved as meeting New Zealand's requirements. MPI recommends that all facilities manufacturing and storing PKE prior to export to New Zealand are added to the list of approved facilities.

5. The systems and processes used by the National Plant Protection Organisation (NPPO) of Indonesia (MOA) 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.

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

7. Based on this audit, the risk assessments previously completed including FMDV and the knowledge that FMDV is not present in Indonesia, 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 Indonesia to review the systems and processes used by Indonesia's MOA to meet the requirements of the IHS for the export of PKE to New Zealand.

That Indonesia's MOA operating as the NPPO:

a. 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.

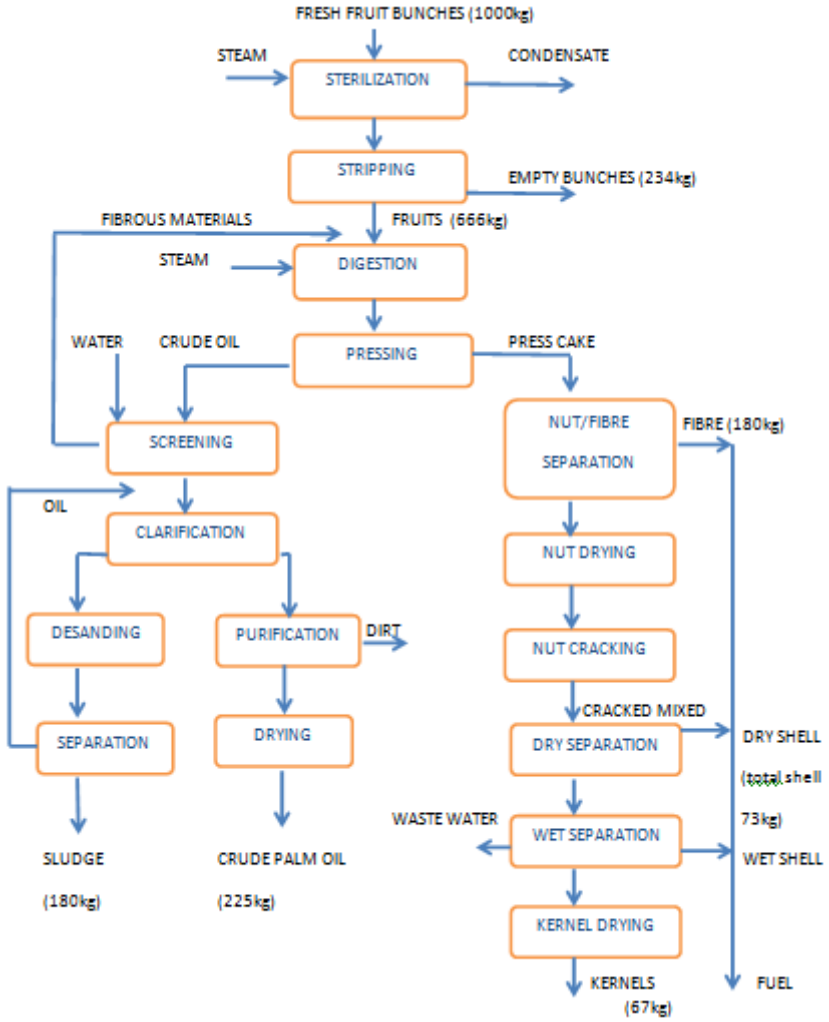
b. Audits any new storage warehouses operated by the PKE facilities prior to their use for storing PKE for export to New Zealand to ensure full compliance with New Zealand's standards.

c. Provides guidance to PKE facilities operating in the Bandar Lampung region to ensure that appropriate pest control activities are undertaken at these facilities.

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

7 Appendices

Appendix 1: Palm Oil and PKE Production Process



Appendix 2: PKE Audit Schedule (8-13 March 2015)

Day	Date	Time			Activities
Sunday	8 March 2015	**17.00 pm**	**-**	**17.50 pm**	**Flight from Jakarta to Lampung (GA 078)**
					Overnight in Lampung
Monday	9 March 2015	07.00 am	-	12.00 pm	1. Site Visit to PT. Sinarjaya Inti Mulya
		12.00 pm	-	13.00 pm	Lunch
		13.00 pm	-	15.00 pm	2. Site Visit to PT. Aman Jaya Perdana
		15.00 pm	-	17.00 pm	3. Site Visit to PT. Kurnia Tunggal Nugraha
		18.35 pm	**-**	**19.30 pm**	**Flight from Lampung to Jakarta (GA 079)**
					Overnight in Jakarta
Tuesday	10 March 2015	**09.15 am**	**-**	**11.05 am**	**Flight from Jakarta to Padang (GA 148)**
		11.30 am	-	12.30 pm	Lunch
		12.30 pm	-	14.30 pm	4. Site Visit to PT. Usaha Inti Padang
		14.30 pm	-	16.30 pm	5. Site Visit to PT. Wira Inno Mas
		18.40 pm	**-**	**20.35 pm**	**Flight from Padang to Jakarta (GA 169)**
					Overnight in Jakarta
Wednesday	11 March 2015	**07.50 am**	**-**	**10.15 am**	**Flight from Jakarta to Medan (GA 182)**
		11.00 am	-	12.00 pm	Lunch
		12.00 pm	-	19.00 pm	6. Site Visit to PT. Multimas Nabati Asahan
					Overnight in Medan
Thursday	12 March 2015	07.00 am	-	09.00 am	7. Site Visit to PT. Musim Mas
		09.00 am	-	10.30 am	8. Site Visit to PT. Smart TBK
		12.20 pm	**-**	**14.45 pm**	**Flight from Medan to Jakarta (GA 189)**
		19.35 pm	**-**	**20.50 pm**	**Flight from Jakarta to Yogyakarta (GA 218)**
					Overnight in Yogyakarta
Friday	13 March 2015	07.00 am	-	10.00 am	Site Visit to salacca orchards
		10.00 am	-	12.00 pm	Site Visit to salacca packing house
		12.00 pm	-	13.00 pm	Lunch
		13.00 pm	-	15.00 pm	Closing meeting at Agriculture Quarantine Service at Yogyakarta

Appendix 3: Map of Indonesia

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 Indonesia 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 MOA/IAQA 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 MOA/IAQA procedures for the production of phytosanitary certificates and export phytosanitary inspection meeting New Zealand's requirements and expectations?
3. Do the MOA/IAQA 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 MOA/IAQA to approve PKE facilities for export to New Zealand
- reviewing the phytosanitary certification and inspection processes used by MOA
- 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 Indonesia 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 in 2013 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: Verification Checklist for PKE Facilities under IAQA Approval Process

Ceklist Pelaksanaan Verifikasi Fasilitas *Palm Kernel Expeller* (PKE)
untuk Proses Pengakuan
Verification Checklist for PKE Facilities under IAQA Approval Process

No.	**Fasilitas milik .....**			**Tanggal: .....**
	Kriteria	**Ya**	**Tidak**	**Catatan)***
Asal Bahan Baku PKE (Kernel) dan Penanganannya (*Sourcing of product and handling*)				
1.	Kernel harus berasal dari sumber yang jelas dan dihasilkan dari kebun yang telah menerapkan cara budidaya yang baik dan benar (*Good Agriculture Practices*, GAP). *(Confirm that only palm kernels from plantation that applied Good Agriculture Practices (GAP) are received at the processing facility)*			
2.	Kernel yang diterima fasilitas ekspor tidak tercampur produk lain dan bebas dari bagian tanaman dan kotoran lainnya. *(Confirm that palm kernels received at the processing facility are not contaminated with other products, including plant parts or plant debris, innert matters, etc.)*			
3.	Kernel disimpan di tempat yang khusus dan dalam kondisi baik (tidak tercampur tanah, kotoran, atau bahan tanaman lainnya). *(Confirm that only palm kernels are stored in the specific storage and the facility free from soil, plant parts, plant debris, innert matters)*			
4.	Kernel dibersihkan sebelum proses produksi. *(Confirm that palm kernels are cleaned before processed further)*			
5.	Tersedia catatan mengenai jenis pestisida yang digunakan dalam budidaya kelapa sawit. *(Confirm that information of pesticides used in plantation is available)*			

Fasilitas Produksi (*Processing facility*)				
6.	Fasilitas produksi hanya menerima kernel kelapa sawit dan tidak digunakan untuk memproduksi bahan-bahan yang berasal dari hewan. *(Confirm that only palm fruit/ palm kernels are received at the processing facility and the facility is dedicated to the production of plant based product only)*			
7.	Fasilitas produksi dilengkapi peralatan yang memadai untuk memastikan pemrosesan kernel kelapa sawit menggunakan mesin bertekanan dengan suhu tinggi lebih dari 85 ^{O}C. *(Confirm that the facility is equipped with processing machine using high temperature screw press process, more than 85 ^{O}C)*			
8.	Fasilitas produksi memiliki sistem pengendalian mutu (*quality control system*) yang baik untuk menjamin produk yang dihasilkan bebas kontaminasi cemaran berbahaya. *(Confirm that the facility is implemented good quality control system to ensure products free from hazardous contamination)*			
9.	Fasilitas produksi telah diregistrasi oleh instansi pemerintah yang berwenang atau lembaga akreditasi lainnya. *(Confirm that the facility is registered in government competent authority or other accreditation agency)*			

Proses Produksi dan Produk PKE (*Processing*)				
10.	Proses pemanasan dengan suhu inti komoditas mencapai minimum 85 ^{0}C selama tidak kurang dari 5 menit dan dapat dibuktikan dengan alat pengukur suhu serta rekaman hasil monitoring suhu PKE yang dihasilkan. *(Confirm that kernels are processed in screw press process with temperature more than 85 ^{O}C at least for 5 minutes and monitoring record of temperature is documented).*			
11.	Produk yang dihasilkan harus bebas dari benih/biji-bijian tumbuhan yang memiliki daya tumbuh. *(Confirm that the product is free from viable seeds/grains).*			
12.	Produk harus bebas dari kontaminasi bagian tanaman yang belum diproses, bagian tubuh maupun kotoran hewan, produk hewan lainnya, dan OPT yang secara visual dapat dideteksi. *(Confirm that the product is free from contamination of unprocessed plant parts, animal waste as well as its body parts, other animal products, and visually detected pests).*			
13.	Produk yang dihasilkan harus dibuktikan bebas dari cemaran residu pestisida, biologi, dan logam berat lainnya. *(Confirm that the product is free from contamination of chemical/pesticide, microbial, and heavy metal)*			
Tempat Penyimpanan/Gudang PKE (*Post production storage)*				
14.	Gudang hanya digunakan untuk menyimpan PKE, berpenerangan cukup, dan tidak terdapat produk lain di dalam gudang. *(Confirm that no other products are stored in the same storage facility as the final product, and the storage shall have appropriate lights)*			

15.	Lantai dalam kondisi baik dan bersih, tidak ada retakan yang dapat mencemari PKE dari tanah atau kotoran lainnya. *(Confirm that the storage is in a good condition to avoid any contamination to final product)*			
16.	Dinding dan atap gudang tertutup rapat dan harus dapat mencegah masuknya burung, tikus, dan hewan lainnya. *(Storage of final product is fully enclosed with no potential for contamination or restricted access from cattle/animals, insect controls, rodent controls, bird proofing, etc.)*			
17.	Ventilasi gudang harus ditutup dengan kain/kawat kassa untuk mencegah masuknya burung dan OPT. *(Confirm that all ventilation in storage are covered by insect screen)*			
18.	Pintu gudang harus dapat dibuka dan ditutup dengan mudah dan seluruh bagiannya tertutup rapat. *(Confirm that gate of storage is easily to move by workers and confirm no access for animals (rodents, snakes, etc)*			
19.	Pada bagian pintu dipasang tirai plastik (*plastic curtain*) untuk mencegah masuknya burung atau serangga terbang masuk secara langsung pada saat pintu dibuka. *(Confirm that curtain plastic is fitted behind the gate but not attached to the gate to avoid birds or flying insects enter into the storage when the gate is open)*			
20.	Terdapat alat perangkap tikus yang dipasang di sekitar gudang. *(Confirm that all storage facilities operate an adequate and effective pest control program and recording, particularly on the outside part of the storage)*			
21.	Pengendalian OPT di gudang secara berkala dan dibuktikan dengan adanya rekaman pelaksanaan program pengendalian OPT. *(Confirm that all storage facilities operate an adequate and effective pest control program and recording, particularly on the inside part of the storage)*			

22.	Peralatan yang digunakan dalam gudang untuk pemuatan PKE ke truk (*excavator*) harus bersih dan bebas dari tanah. *(Confirm that excavator used for loading PKE is clean and free from soil and other contaminats)*			
Pengendalian OPT (*Pest control)*				
23.	Semua fasilitas (tempat produksi, gudang, dan lingkungan sekitar) memiliki program pengendalian hama yang efektif dan tercatat *(Confirm that all facilities operate an adequate and effective pest control program and recording).*			
Pengelolaan Sanitasi (*Sanitation*)				
24.	Kebersihan umum dari semua fasilitas dan lingkungan sekitarnya telah terpelihara dengan baik, tidak ada penumpukan sisa-sisa produk/sampah dan sumber infestasi serangga (rumput/tanaman liar dan lain sebagainya). *(Confirm that sanitation of all facilities and the surrounding area are generally maintained; no accumulation of trash; surrounding area must be free from wild plants/grasses which potentially as sources of pest infestation)*			
Alat Angkut/Transportasi Produk (*Post production transportation)*				
25.	Apakah truk/alat angkut ditimbang pada tempat pengolahan dan tempat muat (*Confirm that the trucks are weighed at the processing facility and at the point of loading)*			

26.	Truk/alat angkut digunakan hanya untuk mengangkut kernel sawit *(Confirm that the trucks are dedicated for transporting Palm Kernel; Confirm that the trucks dedicated for transporting PKE. Verify the trucks are not used to transport animals, animal material and/or unprocessed plant material)*			
27.	Truk/alat angkut telah dibersihkan dan diperiksa kebersihannya sebelum memuat PKE *(Confirm that the trucks are cleaned and inspected for its cleanliness prior to loading)*			
28.	Truk/Alat angkut menggunakan penutup untuk melindungi PKE selama pengangkutan *(Confirm that PKE is covered/protected during transport (clean traps, etc.)).*			
29.	Produk akhir tidak akan terkontaminasi selama dimuat di dalam truk/selama perjalanan/pemuatan kembali di pelabuhan ekspor? *(Confirm that final product can not be contaminated during loading into the trucks, during transport and receipt at the port of export)*			
30.	Kapal yang akan memuat PKE dilakukan pemeriksaan kebersihannya untuk memastikan bebas dari cemaran/sampah dan sanitasi cukup baik *(Confirm that before loading PKE into the ship, there are no any residue/debrish in the holds of a ship and ship has good hygiene and sanitation)*			
31.	Selama pemuatan ke atas kapal dapat dijamin PKE bebas dari cemaran/sampah dan sanitasi cukup baik *(Confirm that PKE is free from contaminant/debris and can not be contaminated during loading into the ship)*			
Pengelolaan Pengendalian Proses dan Kesesuaian Produk (*Quality control system and product comformity*)				
32.	Penerapan sistem manajemen mutu dalam proses bisnis fasilitas ekspor PKE *(Confirm that quality control system is applied in the business process of PKE export facilities)*			

33.	Penerapan monitoring atas cemaran pestisida, logam berat dan biologi pada produk yang dihasilkan *(Confirm that monitoring of pesticide residue and contamination of heavy metal and microbial on PKE is routinely done)*			

*)**Isi dengan informasi mengenai kesesuaian maupun ketidaksesuaian dari pertanyaan pada kolom 2**

Appendix 7: Photos of Facilities

Figure 4: PKE Storage Facility at PT. Kurnia Tunggal Nugraha, Lampung

Figure 5: Storage Facility Door at PT. Sinarjaya Intl Mulya, Lampung

Figure 6: PKE Storage at PT. Sinarjaya Intl Mulya, Lampung

Figure 7: Dedicated PKE Loader outside a PKE Storage Facility

Figure 8: PKE Storage Facility Door at PT. Wira Inno Mas, Padang

Figure 9: Surrounding area outside PKE Storage Facility at PT. Multimas Nabati Asahan, Belawan

Figure 10: Palm kernel crushing facility at PT. Musim Mas, Medan

Figure 11: Infared Temperature Monitoring Device during PKE processing

Figure 12: Storage and netting at a PKE Storage facility

Figure 13: Pest control trap at a PKE Storage facility