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|  | Document Ref : PTTC/PTMC/SOP/10                   | <b>HUB WAREHOUSE AND YARD<br/>MANAGEMENT</b>       | Issued Date : 08 January 2018                        |  |
|   | Revision : 00                                     |  | Page : 24 Pages                                      |   |
|   | Proposed :<br>Odik Effendy / PTTC Project Manager | Reviewed :<br>Ade Nasfuddin / PTTC General Manager | Approved :<br>Ismail Rasyid / PTTC Managing Director |   |

## **Standard Operating Procedure ( SOP )**

### **Hub - Warehouse and Yard Management**

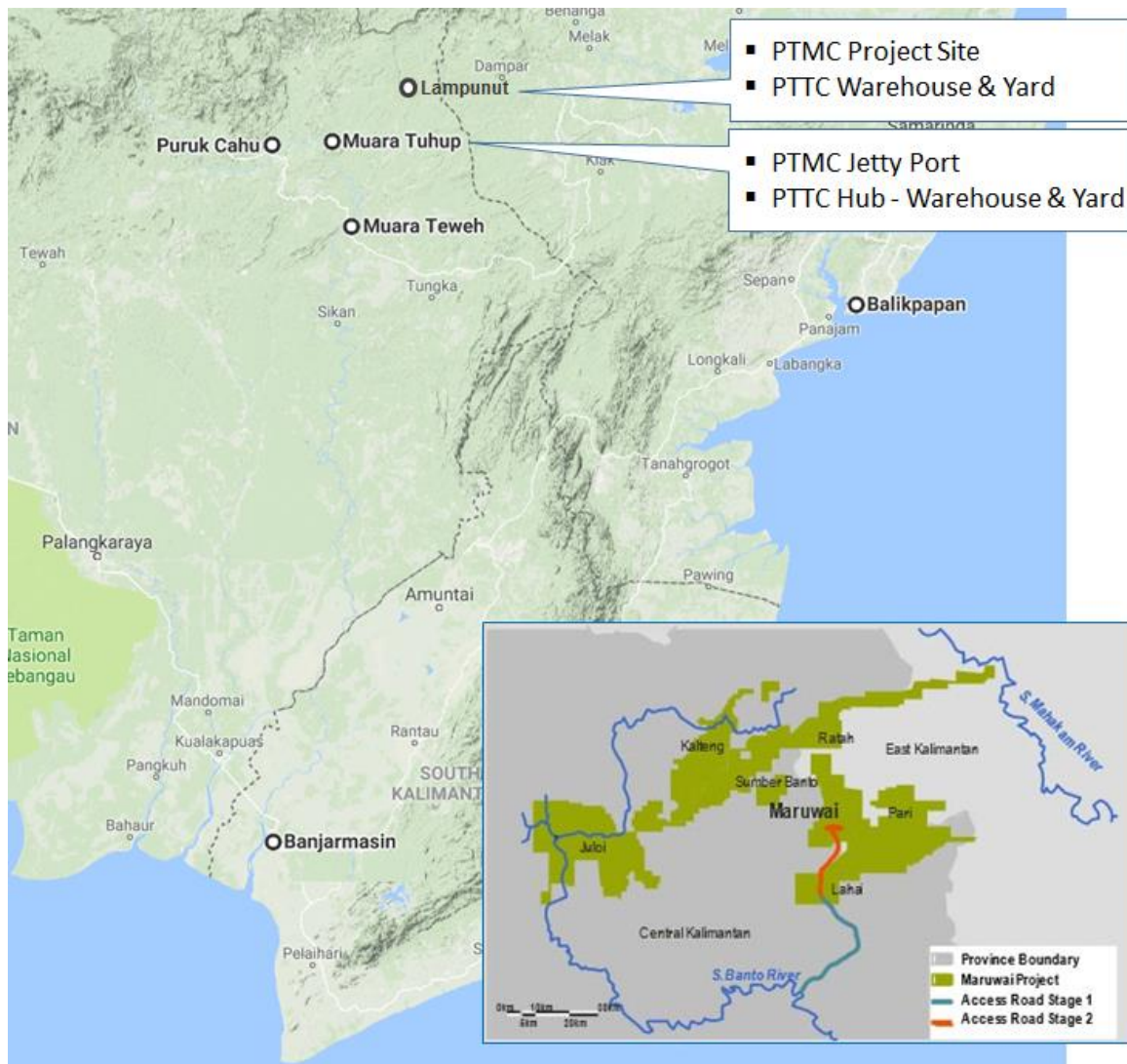
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## 1. Purpose

The purpose of this document is to establish detailed procedures for Handling of Cargoes and Management of Warehouse and Yard premises at the Hub-Jakarta, Muara Tuhup and Lampunut Site for PT MARUAI COAL.

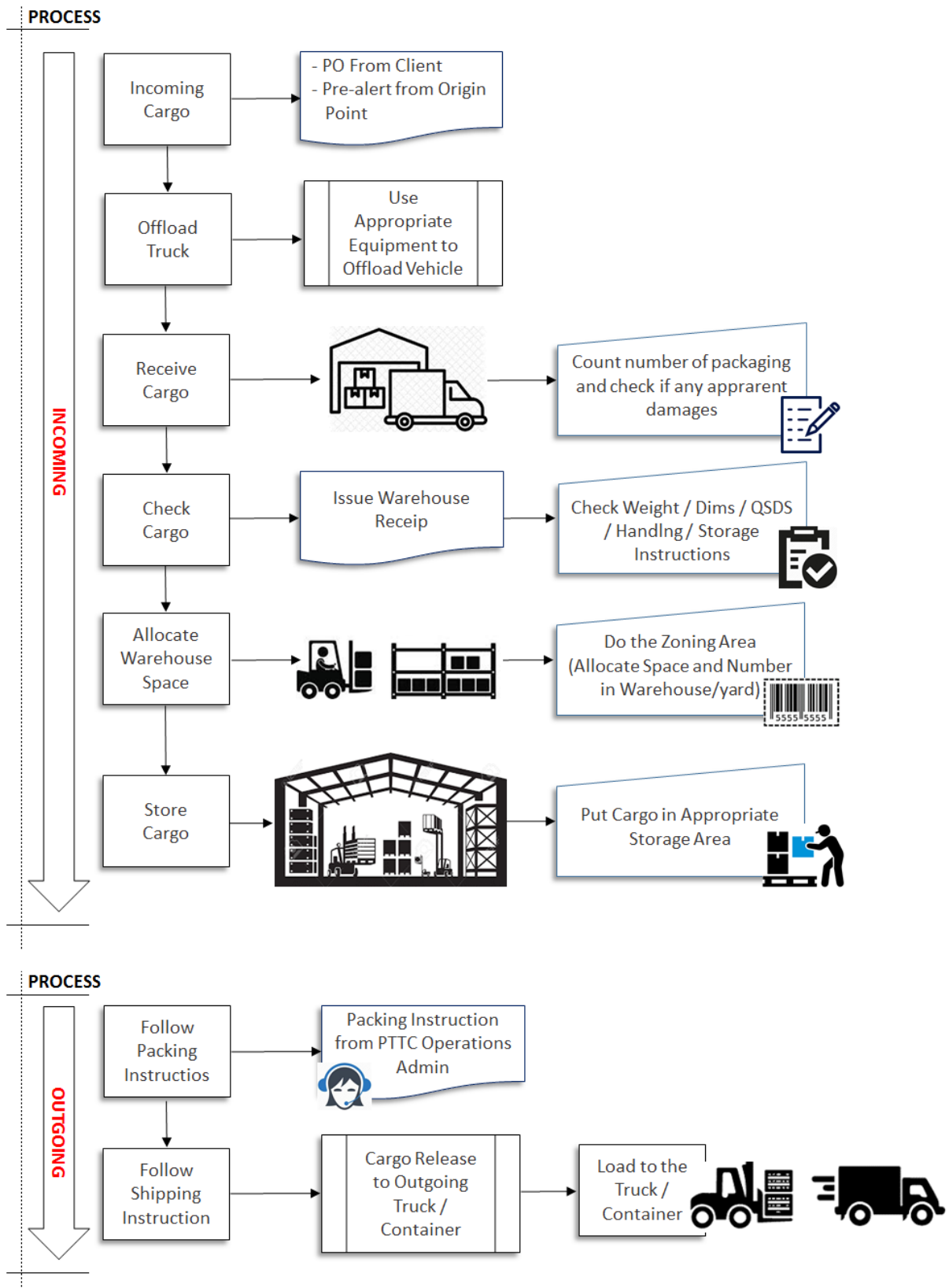




## 2. Process Overview

This procedure describes in details the procedure in place for Handling of Cargoes and Management of Warehouse / Yard entries.

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## 2.1. The basic Steps to be followed are as follows:



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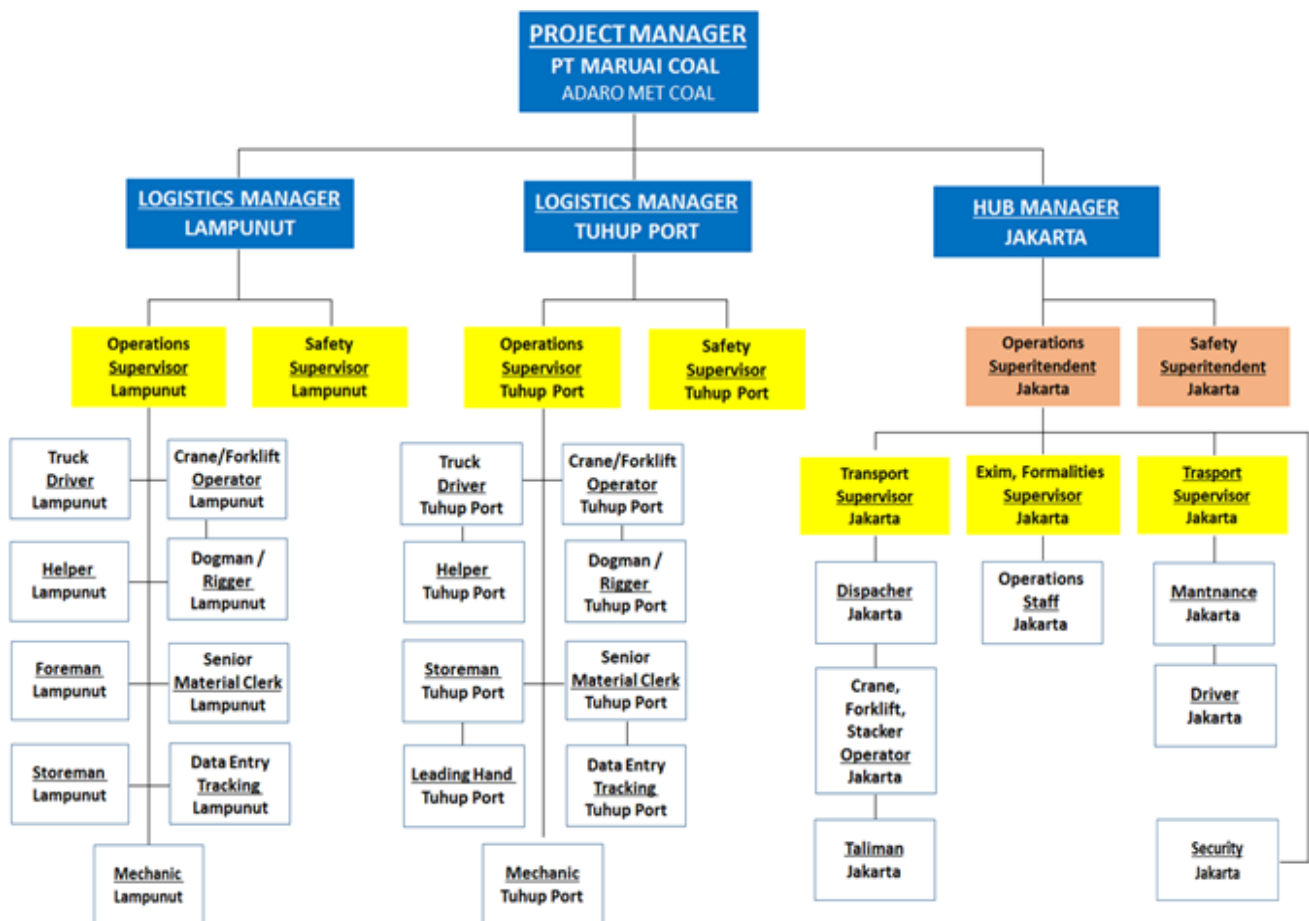
### 3. Scope and Responsibilities



#### 3.1. Purpose

This procedure describes the role and responsibilities of the PTMC Project Team involved in the management of the warehouse and yard and daily activities of:

- Loading / Unloading vehicles
- Receiving cargoes
- Storing cargoes
- Stock keeping / Inventory
- Packing / Palletising
- Container stuffing and unstuffing

#### 3.2. Organization Chart



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### 3.3. Job Discriptions

#### 3.3.1. The Project Manager Manager

The Project Manager Manager is in charge of the Logistics Policies to be applied and overall management of the warehouse / yard including implementation of all procedures. He reports to the Managing Director.

#### 3.3.2. The Logistics Manager

The Logistics Manager is responsible for:

- Cargo Movements in/out for both warehouse and yard
- Planning of cargo storage, stock check and inventory management
- Packing of cargoes
- Container Stuffing and Unstuffing
- Arrangements of equipment usage in the best and cost effective way
- Management of MSDS/OSDS and HAZMAT

The Logistics Manager duties are:

- On site supervision of warehouse Operations
- Warehouse daily activities
- Cargo receiving, handling, storage & dispatching
- Control of documentation
- On site supervision of Packing / palletising activities
- On site supervision of Container Stuffing / Unstuffing activities
- Communication and reporting to PTMC Expediting Team
- Updating of correct usage of Equipments

#### 3.3.3. The Operations Supervisor

Responsible for supporting and assisting the Logistics Manager with the daily activities of the Warehouse and Yard.

The Operations Supervisor duties are:

- Coordination with receiving cargoes from suppliers
- Store cargo at designated areas
- Coordinate the release of cargo to transporter
- Support and assist for packing / palletising activities
- Support and assist for container stuffing / unstuffing



## 4. Warehouse and Yard Procedure

Purpose :

To describe the procedure for receiving, offloading, handling, checking and storing of cargoes in the Warehouse or Yard.

Scope :

All cargoes/goods received at our facility are to be treated in the same manner by the receiving personnel.

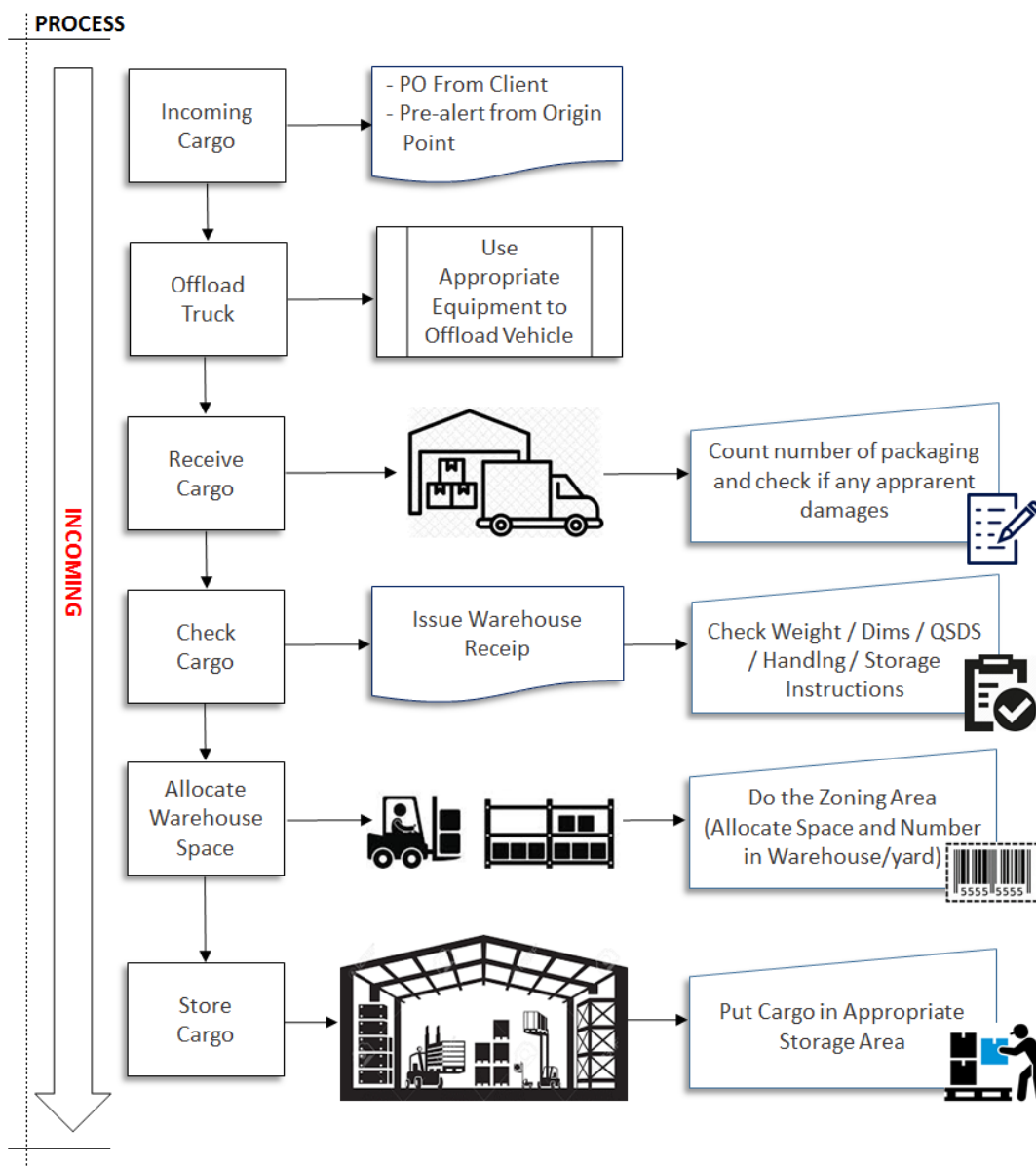
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#### Responsibilities:

The Logistics Manager is responsible to ensure that the warehouse and Yard procedure is maintained. The Warehouse Supervisor is responsible to ensure that the warehouse and Yard procedure in place is followed.

The Warehouse Assistant is responsible to carry out the Warehouse and Yard procedure under the Logistics Manager's supervision.

### 4.1. Cargo Receiving (In):



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**Step 1 : Planning for Incoming cargoes**

- The Expediting Team to obtain Commercial Invoice / Packing List (CIPL) from Vendor and forward to the Warehouse Supervisor and advise of Incoming cargoes

**Step 2 : Check of Documentation (Start Warehouse Receipt Checklist)**

**Step 3 : Offload the Truck**

- The Warehouse Supervisor shall be responsible for the use of appropriate equipments for Offloading cargoes from Incoming Vehicle
- The Surabaya Hub operator shall then perform the offloading of the vehicle following safety instructions
  - If unpacking a container following instructions to apply
  - Conduct a physical inspection of the container prior to unloading from vehicle to confirm container condition
- Seal is checked to confirm the number is correct and that it is still intact
  - Once container doors are opened, analyse cargo condition and handling requirements to ensure correct handling equipment and method is used to unload cargo from the container
  - Photographs of cargo to be taken as record and included with the MR

**Step 4 : Place cargo in receiving Area**

- Count number of packages and confirm against DO / CIPL
- Check for any obvious damages

**Step 5 : Area Check Cargo and finalise WR (Procedure described below)**

- Count number of packages and confirm against DO / CIPL
- Check for OSDS
- Weigh Cargo
- Measure Cargo

**Step 6 : Sign DO (Place reserves if any discrepancies)**



**The CIPL from vendor shall be attached to the DO**

- Always Stamp DO with "Contents Unchecked"
  - Original to be forwarded to Customer
  - 1st copy to be kept by the Expediting Team for file
  - 2nd copy to be kept by Store
  - 3rd copy to be kept by Expediting Team for DO history file
- Count number of packages and confirm against DO / CIPL

**Step 7 : Allocate Warehouse / Yard Space (Zoning)**

- Fill in appropriate section on the WR per Packages



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The process of receiving cargoes in the Warehouse and Yard is to be combined with the issuance of the MATERIAL RECEIPT.

#### 4.1.1. Material Receipt (MR) – Checking Outer Pack :

The PTTC warehouse team shall issue the MR for all cargo entering the Warehouse or Yard.

1. Original is kept at the store
2. Copies are forwarded to the Expediting Team (1 for the file + 1 for records of all MR)

The MR contains 6 Sections as follows:

##### Part 1 = Documentation

- Check that PO was received from Expediting Team

**If not received, Inform Expediting Team vendor to be contacted immediately to obtain records**

- Check that Invoice is provided by vendor
- Check that Packing List is provided by vendor
- D/O (Delivery Order) received from Trucking company

##### Part 2 = Checking Physical Condition of the cargo

- Check for any OSDS (Overage / Shortage / Damage) against PL from vendor and DO from the Trucking company If any, please Specify and Inform Expediting Team immediately
- Check Cargo Marking / Labelling and conformity to documentation provided or as per PTMC Packing Specifications
- Check Packing Condition of the cargo and note if cargo is found to be not properly packed.



If any discrepancies are found (Overage/Shortage/Damage/Wrong Marking/No Proper packing), the Operations Supervisor shall inform the Expediting Team immediately who shall relate the information to the PTMC, instructions received from PTMC are then to be passed onto the Operations Supervisor on the next course of action to be taken.

##### Part 3 = Particulars of the cargo

The PTTC Warehouse Team shall confirm the particulars of cargo as follows:

- General Cargo (Normal cargoes without any special handling or storage instructions)
- Fragile Cargo
- Food Stuff Chemicals: DG Cargo (HAZMAT = Hazardous Materials) or non classified, non hazardous chemicals.



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For DG cargoes, the PTTC Warehouse Team will request from the Expediting additional information and confirm:

- What type of DG Cargo: Gases / Liquids / Solids (to be specified)
- Have we received the MSDS Sheet -If not, reject cargo
- Is the DG Marking conform to the MSDS -If not, reject cargo

All chemicals, UN classified or non hazardous, shall be accompanied with proper MSDS to be kept in a folder and properly stored, respecting segregation rules in the warehouse.

#### **Part 4 = Special Handling Instructions**

If cargo cannot be lifted with standard equipment and is deemed unsafe to lift or special instructions have not been provided by the supplier or PT Batutua then KN Expeditors to immediately contact the client to obtain instruction;

- If no Special Handling instructions, go to next section
- If Special Handling instructions received, follow instructions.

#### **Part 5 = Special Storage Instructions**

The PTMC SCM/Logistics Team shall confirm if any Special Storage Instructions have been provided and is to be applied.

- If no Special Storage instructions, go to next section
- If Special Storage instructions received, follow instructions.

#### **Part 6 = Weight and dimensions verification + Storage allocation**

Received cargoes have been placed in the Receiving area once unloaded from Truck.

- The PTTC Warehouse Team shall proceed with Weight and measurement verification for each package.
- Each Package is allocated a Storage area (Zone).



If only receipting OUTER PACKS presumption to be made all contents have been received. If PTTC are to perform line item checking the the following procedure to apply.

##### **4.1.2. Material Receipt (MR) – Checking Inner Pack / Line Item Checking :**

Once Outer Packs have been offloaded / unpacked each piece of cargo will be uncrated / unpacked (Recrated as required for on forwarding to site) to the extent to verify the contents. The packing list will be used to confirm the delivery as follows:

- Verify purchase order number.
- Verify quantity delivered.
- Verify descriptive data.
- Verify descriptive data – Tag no, equipment number, size, colour, make, model, serial number, part number.

Material / equipment which do not conform to the purchase order specification, or is damaged, will be segregated in a quarantine area pending action.

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Once the receipt verification process has been completed, the storage location details of each item will be noted on the packing slip. Items requiring further inspection may be placed in quarantine storage pending inspection.

The marked up packing slip will be used to generate a material receiving report. Procedures will be developed and implemented stipulating the responsibility and instruction for material receipt verification.

#### 4.1.3. Material Receipts (MR)

Material Receipts (MR) will be produced automatically from the System and accessible to PTMC via the web based system.



## 4.2. Cargo Storage

- Storage areas will be of sufficient capacity to allow orderly storage of the various categories of Goods
- Storage areas will be designated or adapted to ensure good storage conditions.
- Stock will be managed as per customer requirement (using Software e.g. Prostream, Midas...)

**The PTTC Warehouse Team shall allocate the Warehouse / Yard Space according to the following particulars.**

Segregated fixed areas are clearly marked are allocated for the warehouse:

- Cargo Receiving: Shall contain cargo received from Client/Vendor before proceeding of Weight and Measurement verifications.
- Cargo Outgoing: Shall contain cargo that is planned to exit the warehouse/yard.
- Storage of General Cargo: Shall contain general cargo only.
- Storage of Food Stuff: Food Stuffs are to be stored above ground and part of the shelving area shall be dedicated to it.
- Storage of Temperature controlled items / Cold Room
- Storage of DG Cargo – Chemicals: The area for storage of DG Chemicals shall be built with a drain for containment for environmentally pollutant chemicals as oils + ventilation system and Spillage kit is available at proximity if need be.
- Storage of DG Cargo – Gases: The area for storage of DG – Gases shall be marked clearly and ventilation must be provided.
- Storage of Long Length items: Shall contain long length items or other General Cargoes is no long length items are present
- Storage of small items: Do not store small items under large/heavy cargoes. Palletize as far as possible.
- Storage at height: Do not store unstable cargo at height and be sure it is always secured properly.
- Packing area: The area between the 2 Storage zones shall be used for Packing and palletising
- Non-Conforming Cargoes: A “NC” sticker shall be applied on all Non-Conforming cargoes till problem has been solved.

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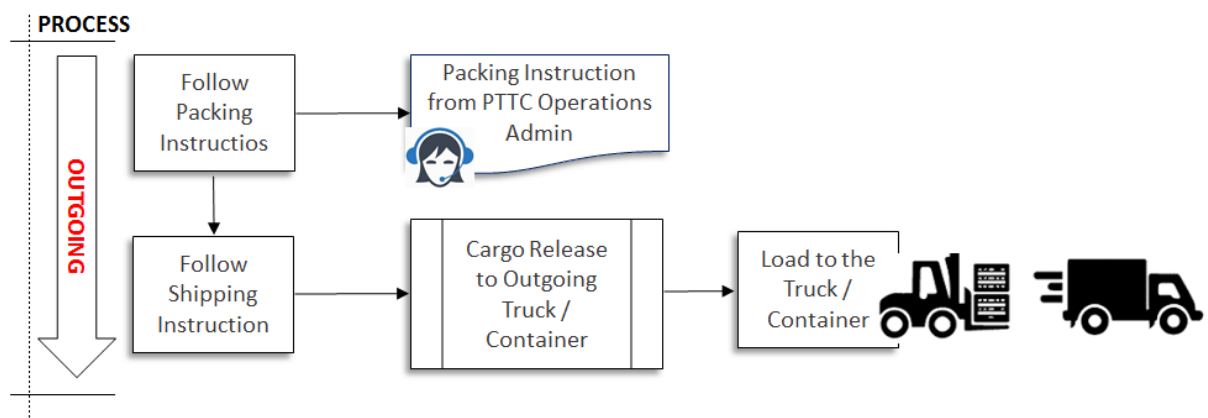
The Yard is used for storage of Non-sensitive item (e.g. Containers, pipes...) and shall be referred to as “YARD”

### Guidelines:

Materials/goods should be stored properly to prevent them from becoming hazards.  
Safety Tips for Material Storage:

- Keep stored materials on firm foundation
- Use supporting structures to ensure stability and prevent collapse
- Store materials in a stable manner
- Do not pile materials to obstruct lightning
- Do not obstruct fire fighting equipment, e.g. sprinkler, fire hoses, fire extinguishers
- Do not obstruct emergency showers and eyewashes, or spill clean-up equipment
- Do not exceed the load rating of floors, shelves, etc...
- Do not store material against partitions unless the partitions are able to withstand the Pressure
- Do not store loose materials or liquids in raised areas above work areas

### 4.3. Cargo Receiving (Out):





#### Step 1 : Receive Packing Instructions from the Expediting Team

- The Expediting Team shall provide the packing instructions received from PTMC to the PTTC Warehouse Team to coordinate packing
- The PTTC Warehouse Team shall follow the instructions and prepare (pack) the cargo for “Exit” of the warehouse.

#### Step 2 : Receive Shipping Instructions from Expediting

- The Expiditors shall provide the shipping instructions to the PTTC Warehouse Team
- The PTTC Warehouse Team shall follow the instructions for cargo release for packing into Sea Containers and / or truck.

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- Cargo shipped in containers should be packed as per the following guidelines:
  - Cargo should be packed in accordance with the packaging type, cargo weight and characteristics of surrounding cargo
  - Cargo should be packed so as to maximise the container capacity
  - Cargo should be packed so as to evenly distribute the weight within the container
  - Hazardous and dangerous goods should be packed at the front of the container for ease of access
  - A container manifest should be completed outlining the details of the cargo packed into the container
  - A copy of the container manifest together with the following documentation should be affixed to the inside door of the container
    - Container manifest
    - Purchase Order copies
    - Supplier documentation
    - MSDS for any hazardous and dangerous goods
- **For Non-containerised Cargo**
  - Cargo that is unable to be containerised (eg oversize cargo) should be clearly marked with lifting points or forklift access points where appropriate
  - Self-propelled cargo should be in working order prior to despatch and have sufficient fuel and lubricants to complete loading and unloading from the LCT vessel
  - On occasion there will be a requirement to despatch cargo directly to Banjarmasin via Airfreight or Regular shipping lines or LCT due to urgency. Upon arrival at Banjarmasin, cargo is then despatched via the regular LCT Charter service between Banjarmasin and Muara Tuhub. All arrangements for despatch via LCT Charter are coordinated by PTMC.
  - PTTC Banjarmasin office. In addition to the standard Project markings, cargo to Muara Tuhup should be marked as follows:
 



PT. MARUWAI COAL  
Jl. Xxxxx No. Xx, RT/RW  
Muara Tuhup, Kalimantan Tengah  
Attn : Bpk. Xxxxx - SCM Manager  
Mobile : 0811-8989-599

### **Step 3 : Load Truck / Container**

- The Logistics Manager shall be responsible for the use of appropriate equipments for loading cargoes to Outgoing Vehicle or Stuffing into containers
- The PTTC Warehouse Team shall then perform the loading of the vehicle or container following safety instructions.

### **Step 4 : Transport to LCT**

- Expediting Team shall coordinate delivery to the LCT for transport to Jetty Muara Tuhup Bay

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#### 4.4. Handling of Non-Conformances.

Including: OSDS (Overage / Shortage / Damages) for General Cargoes Non-Conformances can be in the form of:

- OSDS
- Packing not appropriate for cargo (no sufficient packing...)
- Wrong Label / Marking not conform

If any non-conformance cargoes are noted upon receiving/storage of goods, the warehouse personnel shall:

**Step 1 : Place a “reserve” of the D/O of the trucking company that describes the non conformity:**

E.g. “Package 1 Dented / Content Unchecked”

**Step 2 : Warehouse Supervisor to Inform Expediting Team, they then are to produce an OSDS in OGS. OSDS then to be forwarded to PTMC advising them of the non-conformity and wait for further instructions.  
Provide documented evidence of the Non-Conformance (D/O, WR...)**

**Step 3 : Store cargo in the warehouse with a non-conformance sticker (“NC”) visible on it.**

**Note:**

The Expediting Team will follow their procedure in communicating the Non Conformance with the customer and further instructions on the next steps of actions shall be provided.



#### CASES FOR REJECTION OF CARGOES:

The PTMC SCM/Logistics Team will reject the cargo from the Trucking Company for the following reasons:

- No Delivery Order provided by Trucking Company
- No Itemised Packing List if Provided by Vendor / Client
- No MSDS is provided for DG Cargo
- Wrong DG Marking/Labelling is noticed against MSDS

## 5. Stock Keeping and Inventory


Stock keeping and Inventory depends on the customer’s requirement. The Warehouse / Yard will keep a record of all Stock per Customer using method chosen by Customer:

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## 6. DG Cargo Handling and Storage

### Documentation and Standards

The main documents of reference are as follows:

| Reference of Document   | Title   | Comments  |
|---|---|---|
| IATA Code<br>Revised each year<br> | International Air<br>Transport Association<br>Dangerous Goods<br>Code | This code is the basic Airfreight document for Dangerous Goods. It sets the rules for identification, marking, labeling, packing specifications, forwarding, documentation and segregation of Dangerous Goods |

### Definitions:

Hazardous Materials are materials presenting a risk to the transport means (aircraft truck, or ship), to the environment and/or to the persons in contact with those materials and, which are referred to as such in the IATA or IMDG codes.

The following rules, regulations and specifications shall be applicable to the handling of hazardous materials:

- MSDS (Material Safety Data Sheet) to be provided by the manufacturer
- IATA Rules for air shipment of restricted articles
- IMDG Rules for sea shipment of Dangerous Materials
- Prevailing legislation in country of operation
- Chemical Hazard Information and Packaging Regulations (CHIP)
- The Training of Drivers of Vehicles Carrying Dangerous Goods Regulations 1992 (DVCG)
- Prevailing local legislation regarding for the transportation and storage of special, fragile or hazardous materials.



### Planning of DG Cargo receiving & Storage:

Prior to actual delivery of hazardous and special materials the Logistics Manager shall be in possession of:

- Materials Safety Data Sheet (MSDS)
- IATA or IMDG Dangerous Cargo Declaration
- Special Instructions from Vendors / Constructors.

**A toolbox safety meeting will be held as necessary with all the personnel involved in the handling operations so as to:**

- Review the handling instructions with the personnel, according to the Vendors/Constructors instructions for special materials.

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- Inform the personnel about the nature of the hazards of the materials they are handling according to the MSDS received.
- Review the handling equipment and lifting gear to be used for the handling operations as well as the possible emergency and protective equipment to be made available during the handling operations.
- Such materials shall always be handled with a special care so as to avoid possible damage, spill and skin contact.

### Receiving / Rejecting DG Cargo:

As described in previous sections, PTTC performs a WR (Warehouse Receipt) form for each incoming cargo to the warehouse and Yard.

This procedure provides the PTMC SCM/Logistics Team with a method for identifying the appropriate Handling and Storage requirements of Hazardous Materials.

For DG Cargo, the PTMC SCM/Logistics Team will reject the cargo for the following reasons:

- If no MSDS is provided
- If the wrong DG Marking/Labelling is noticed against MSDS

## 6.1. PPE (Personal Protective Equipment)



The PTMC SCM/Logistics Team shall not handle any DG Cargo without previous reference to the MSDS on Personal Protection required and making sure that instructions are followed strictly.

### List of PPE Equipments:

| S/N | Body Part                       | Type of PPE - Example   |
|-----|---------------------------------|---|
| 01  | For Head Protection             | Safety Helmets  |
| 02  | For Hearing Protection          | Ear Plugs and Ear Muffs   |
| 03  | For Eyes Protection             | Goggles, Safety Spectacles  |
| 04  | For Face Protection             | Face Shields, Hoods   |
| 05  | For Hand Protection             | Thermal, Cotton Gloves  |
| 06  | For Respiratory Protection      | Air purifying or air supplied respirators / Dust / Organic Mark and H2S escape mask |
| 07  | For Free Fall Hazard Protection | Safety Harness, Lift Lines  |
| 08  | For Body Protection             | Fire retardant jumpsuits, normal jumpsuit   |
| 09  | For Feet and Legs Protection    | Leggging, Safety Footwear   |
| 10  | For Protection Against Drowning | Lift Jacket   |





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**The minimum PPE that warehouse/Yard Personnel are using for daily activities are:**

- Safety Boots
- Safety Gloves
- Coveralls
- Safety Helmets
- Goggles (when applicable)

**If any other PPE is required for handling of specific DG Materials, the Logistics Manager shall be responsible for making it available before the arrival of the cargo.**

## 6.2. Training

The training procedure is described in details in the KN QHSE System Procedure Manual. For warehouse and Yard Operations, it is the responsibility of the Logistics Manager to ensure that any Staff involved in the Handling and Storage of DG Cargo must have received appropriate training before carrying out any work.

In Addition, a Toolbox Meetings and/or Hazard Identification Plans will be carried out as and when required to identify risks and manage the potential hazards involved in activities to be carried out at the Warehouse and Yard.



## 6.3. Material Receiving

Refer to the Material Receipt Procedure for steps to be followed for checking:

- Documentation (if HAZMAT Cargo, MSDS must be attached)
- Check OSDS (Overages, Shortages, Damages)
- Check Marking of cargo (Marking for DG must provide labelling conform to MSDS)
- Check Packing Condition of Cargo (Packing must be conform to Packing Information from MSDS) and no damages to packaging must be accepted for DG Cargo)
- Confirm Cargo Details: commodity and type of DG Cargo The PTMC SCM/Logistics Team shall Read and study the MSDS Sheet provided
- Allocate Warehousing / Yard space for Storage (Zoning) – Follow Procedure and refer to HAZMAT reglementation on what shall not be mixed for storage.

## 6.4. Warehouse Space Allocation

- The warehouse and Yard Design and Zoning are pre-established with areas clearly identified for Storage of Chemical Cargoes:
  - DG1: Hazardous Chemicals (toxic, corrosive, Acids separated from bases)
  - DG2: Gases (flammables and not flammables), flammable DG.
  - DG3: Oxidizing substances.
  - DG4: Environmentally pollutant that require a secondary containment (oil, pesticides, very toxic substances).

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- Areas where HAZMAT Cargoes are stored are clearly marked / labelled and separated from each other.
- The MSDS shall be accessible to all staff involved in handling of cargoes in case of emergencies.

Hazardous chemicals and gases may be corrosive, irritating, toxic, flammable or carcinogenic.

Direct skin contact with some chemicals may cause burns or skin rashes from irritation or allergy.

- Chemical spills and splashes may damage the eyes.
- Volatile chemicals, such as solvents, can be inhaled.
- High concentrations of vapour or gas can accumulate particularly in poorly ventilated and confined areas.

**It is therefore important that employees who work with chemicals are aware of the hazards, trained in handling the chemicals and follow safe work practices to avoid chemical exposure.**



#### **Safe Work Practices for Handling Hazardous Chemicals:**

- Provide local exhaust ventilation where there is a risk of inhalation,
- Provide emergency showers and eyewashes where corrosives are handled,
- Wear suitable personnel protective equipment when manipulating DG,
- Do not allow unauthorised access to hazardous chemicals,
- Inspect chemical stores regularly to check for deterioration or leakage,
- Keep store quantity to a minimum
- Ensure that all chemical containers are properly labelled and warning signs are displayed in and around areas where chemicals are stored,
- Ensure that every stored chemical has a Material Safety Data Sheet (MSDS). The classification of chemicals, labelling of chemical containers and format of MSDS should follow the globally harmonized system of classification and labelling of chemicals,
- Arrange for medical examinations for staff exposed to chemical listed under the factory Regulations (Medical Examinations).

### **6.5.Storage Guidelines**

Dangerous Good areas should be clearly identified in the warehouse and isolated from the rest of the cargoes.

All chemicals, Hazardous or Non Hazardous, stored temporarily or used at the premises should be recorded in a general "Chemical Inventory", kept up to date each time the product is moving out of the warehouse or premises.

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Most approaches to compatibility deals only with identifying which combination of dangerous goods are incompatible. When storing dangerous goods it is important to consider that adverse reactions can arise between dangerous goods and other materials that are non classified as DG. As for example, metals can react adversely with some class 8 corrosives and evolves flammable hydrogen gas; aqueous solutions may react violently with water reactive solids; dust and fibres with Organic peroxides.

All MSDS should be kept in a folder at the office and risks linked to chemicals should be assessed and control. MSDS will help defining:

- Appropriate, compatible fire suppression media,
- The likelihood of a violent reaction and other response advice,
- Spill containment or dilution measures,
- Personal Protective Equipment.

The integrity of the packaging should be checked regularly as it may have been deteriorated by several factors while stored:

- Cold temperatures (plastic and glass containers)
- Hot temperatures (Plastics creep, increase of components reactivity towards packaging)
- UV (plastics are UV sensitive)
- Atmospheric pollution (Corrosion of metal package)
- Internal overpressure (as for peroxides).

DG labels should remain readable and must be replaced if necessary.



Note that this guideline is only a guide and not meant to replace a Material Safety Data Sheet, Customer's special handling and storage instructions and Risk assessment.

In a general way, when storing reactive products, the following basic rules should be respected:

- Store in isolated, cool, dry areas and away from direct sunlight.
- Keep open flames and other sources of heat away.
- Avoid shock, friction and all forms of impact on the chemicals.
- Do not store incompatible material near each other to prevent accidental contact.
- Keep chemicals which readily absorb moisture or react violently in tightly sealed containers or desiccators.

Some shock sensitive materials (decompose violently if struck or heated) are as diverse as: Ammonium nitrate, dinitrophenol, dinitrotoluene, fulminating gold, hydrazine, nitroglycerin, nitro urea, picric acid, picryl chloride, organic peroxides, trinitrobenzene, trinitrotoluene...

Read carefully MSDS and refer to customer's special handling instructions.

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#### **STORING EXPLOSIVES:**

Definition: Solid, liquid, pastry or gelatinous substances and preparations which may react exothermically without atmospheric oxygen thereby quickly evolving gases and which under defined test conditions detonate, quickly deflagrate or upon heating explode when partially confined.

**PTTC is not managing explosives storage or at very particular conditions.**



#### **STORING FLAMMABLES:**

Definition: Liquid substances and preparations having an extremely low flash point and a low boiling point or which are flammable in contact with air at ambient temperature or pressure.

- Store flammable solvents in safety containers and keep flammable liquids in steel cabinets away from any heat source.
- Do not keep flammable liquids on open shelves.
- Do not store flammable liquids in refrigerators.
- No smoking or naked flame should be allowed at or near the storage area.
- Suitable fire-fighting equipment should be available at the storage area.



**To be kept away from flammable chemicals at all costs!**



#### **STORING TOXICS:**

Definition: Substances or preparations which in very low quantities cause death or acute or chronic damage to health when inhaled, swallowed or absorbed via skin.

- Store toxic chemicals in proper containers.
- Highly toxic chemicals should preferably be stored in double containment and kept under lock.
- Do not store toxic chemicals on high shelves where there is a risk of dropping during transportation.

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Some of the high toxicity chemicals are as diverse as follows: Acrolein, Allyl alcohol, Allyl chloride, Aniline, Antimony compounds, Barium salts, Benzene, Benzoyl chloride, Bromine, Chlorine, Cyanides, Dimethyl sulfate, Fluorine, Formaldehyde, Formic acid, Hydrazine, Hydrochloric acid, Hydrofluoric acid, Hydrogen cyanide, Hydrogen peroxide, Iodine, Isocyanates, Mercaptans, Nitric acid, Phenol, Phosgene, Sulfur dioxide... Read carefully MSDS and refer to customer's special handling instructions.

**All personnel should be advised to wear appropriate PPE in case of manipulating!**



#### **STORING CORROSIVES:**

Definition: Substances and preparations which may, in contact with living tissues, destroy them.

- Store acids or alkalis in plastic or other suitable containers.
- Keep strong acids and bases in separate cabinets, preferably with catch trays.
- Store the main stock of concentrated acids and bases as near to the floor as possible.



#### **STORING GAS CYLINDERS:**

Store cylinders in a rack with valves up and in a safe, dry, well-ventilated place reserved for this purpose.



Cylinders should be stored in an area where no damage can occur.

- Cylinders stored in outdoor areas should be protected from extremes of weather.
- Cylinder of oxygen should not be stored in the same area as flammable gas cylinders.
- Cylinders should not be stored near sources of heat or highly flammable substances such as gasoline, kerosene.
- Do not roll cylinders on side to move them but use appropriate mechanical handling devices.



#### **STORING POWDERS:**

- Powder storage areas should be reasonably cool, dry and free of air borne contaminants.
- Provide dust containment methods to avoid air contamination.
- Keep the area cleaned and free of dust.

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### **STORING ENVIRONMENT POLLUTANTS:**

**Definition:** Substances and preparation which would present or might present an immediate or delayed danger for one or more components of the environment.

- Efficient means of containment need to be installed.
- Emergency spillage response adapted to avoid environment contamination.



### **STORING IRRITANT/HARMFUL PRODUCTS:**

**Definition:** Non-corrosive substances and preparation which, through immediate, prolonged or repeated contact with the skin or mucous membrane, may cause inflammation or cause acute or chronic damage to health when inhaled or swallowed.

- Store Irritant or Harmful chemicals in proper containers.
- Do not store Irritant or Harmful chemicals on high shelves where there is a risk of dropping during transportation.





### **STORING RADIOACTIVES:**

**PTTC is not managing Radioactive products storage or at very particular conditions.**

### **Manage DG storage Incompatibilities**

The following factors are to consider when determining incompatibility:

- Whether a violent reaction (fire or explosion) may occur between 2 chemicals.
- A reaction between 2 or more DG cargoes may liberate flammable, toxic or corrosive vapours or gases and give a rise to an emergency situation.
- Released or spilled goods may deteriorate, contaminate or destroy the packaging material of another incompatible product to worsen situation.
- Flammable goods stored next to other toxic or corrosive material may catch fire causing rapid dispersal of the toxic or corrosive material into the environment.
- Flammable material may catch fire and cause flame impingement on products stored nearby (e.g. Gas Cylinders) resulting in rupturing of the gas cylinder.
- Fire suppression media suitable for one type of dangerous goods may be incompatible with another dangerous good stored in the same area (e.g. water extinguisher and sodium metal).
- How the material used in the construction of spill catchment's systems will react with dangerous goods spilt in the catchments (e.g. Hydrochloric acid will rapidly corrode concrete walls used as a spill containment system).

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## Storage Rules – Basic

|   |  |  |  |  |  |
|---|--|---|---|--|---|
| <i>Irritant or harmful</i>              |   | OK  | OK  | SI   | OK  |
| <i>Poisonous / Toxic</i>                |   | OK  | OK  | NO   | NO  |
| <i>Oxidising Chemicals</i>              |   | SI  | NO  | OK   | NO  |
| <i>Flammable or extremely flammable</i> |  | OK  | NO  | NO   | OK  |

**OK** Can be store in the same place

**NO** Can not be stored together in the same area without separation

**SI** Special instructions to respect if stored together

Once incompatible goods have been identified, the best way to segregate should be defined. The control measures employed then to segregate will depend on the hazardous properties and the level of risk presented from each scenario.

The segregation techniques are as follows:

- Segregation by distance or by use of inert materials (materials would not react violently together).
- Segregation by the use of cut-off/partitioned storage areas (materials reacting violently together).
- Segregation by the used of detached storage (separate buildings). While assuring that incompatible goods are not stored above one another.



## 7. Warehouse and Yard Equipment Usage

Maintenance and proper usage of warehouse and Yard Equipments for loading / unloading vehicles and containers is the responsibility of the Logistics Manager as described in the QHSE System Procedure Manual.

### Logistics Guidelines:

- Eliminate manual handling of heavy load



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**Wherever possible, use automation or lifting equipment such as fork lift trucks, crane and hoists to minimize the manual lifting of heavy loads.**

#### **Drive Forklift Carefully:**

- Only a trained and authorised operator, who has passed the Forklift Driver's Training Course, is allowed to operate the forklift
- Follow manufacturer's operating procedure
- Carry out daily checks before operation
- Inspect the load before lifting to ensure loose materials do not fall off during lifting
- Do not ride on forklifts
- Do not raise load over other workers
- Do not exceed the rated capacity

#### **Use Pallet Jacks to move goods**

Ensure that the load on pallet is even

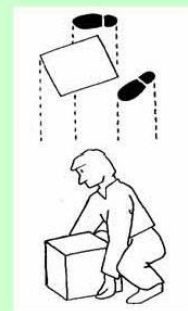
- Pull manual pallet jacks on the level ground
- Walk slowly
- Blank pallet jacks down ramps or into closed areas, e.g; elevators.
- Lubricate the wheels and hydraulic handles regularly,
- Do not use if the fork wheels are out of alignment or when the fork lifts unevenly

#### **If some packages are handled manually, Practice Good Manual Handling Techniques:**

Workers performing manual handling tasks should be trained on proper handling technique



**Step 1:** Assess the load and plan the lift. Do you need help? Can you use some lifting equipment? Clear the path of any obstructions.





**Step 2:** Grasp the object firmly and hold the object close to the body.



**Step 3:** Lift the object by pushing up on your legs. Avoid jerking or twisting your back.



**Step 4:** Ensure feet are stable and good grip on object before moving off.

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## Individual Job Instruction issued to PTTC Personnel

Date:

\_\_\_\_\_  
Accepted By  
(Signature of PTTC Personnel)

\_\_\_\_\_  
Issued By  
(Signature of PTTC Project Manager)