



# Overview of Terminal Storage to Retail Site Supply Chain

## Generic End-to-End Process

October 16, 2017  
DOE Training hosted by PIP

Stip Cruz

**Pilipinas Shell Petroleum Corporation**  
Trading & Supply – Pilipinas Shell Petroleum Corporation

# PRODUCTS OVERVIEW: What products are handled at these locations?



Retail Sites



Depots / Terminals



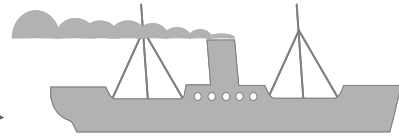
Refinery / Import Terminal



# Downstream Oil Industry Supply Chain



Refinery or Main Import Facility



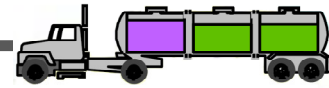
Vessel / Tanker (Fuel Products/Ethanol)



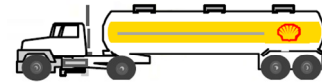
Injection System  
 ✓ Additives  
 ✓ Dyes



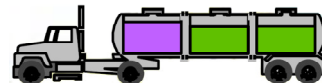
Storage and Handling Sites (Depots)



Truck/Isotank (Ethanol/CME)



Road Delivered by Contracted Fleet



Customer Pick-up



Water-Delivered by Contracted Barge



Bulk Filling Gantry

Injection System  
 ✓ Additives  
 ✓ Dyes



Retail



Marine



Aviation



Industrial / Wholesale Customers



## Quality Assurance and Quality Control: Point of Manufacturing/Point of Importation

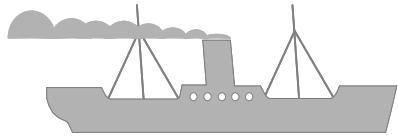


Refinery or  
Main Import Facility

*A CoQ is representative only for the batch where it was sampled from.*

- ✓ FULL Certificate of Quality is required from the point of manufacturing
- ✓ Actual testing done on ALL quality specifications
- ✓ The legal minimum declaration of quality shall be the country national standard
  
- ✓ For import facilities:
  - ✓ A full CoQ from the import source (manufacturer/blender of the imported product)
  - ✓ Import facility will perform minimum “recertification testing”
    - ✓ Recertification testing: Testing on selected parameters only, all other parameters are referenced to the original CoQ

# Quality Assurance and Quality Control: Transport of Fuel via Marine Tankers



Vessel / Tanker (Fuel Products/Ethanol)

## Examples of Tests Done Before/After Marine Transport

- ✓ Visual/Appearance
- ✓ Water Finding Test
- ✓ Density Reading
- ✓ Conductivity Test (For ADO/Kero/JetA1 only)
- ✓ Flashpoint Testing (For ADO/Kero only)

**The tests to be done are dependent on the QA/QC process of the “activity owner”. Basic testing is recommended to detect potential product contamination.**

- Vessel suitability criteria [quality control screening]
  - Example: fully dedicated vessels to single grade (Jet A1)
  - Example: previous load vs next load matrix
    - Previous load: fuel oil
    - Next load nominated: kerosene [ Allowed / Not Allowed? ]
  - Cargo inspector checklists: cleanliness and ‘empty’ status of cargo tanks before loading; no water presence
- Vessel is provided a copy of the COQ representing the cargo loaded (“shore tank COQ”)
- Cargo inspectors will perform density and appearance testing.
- Retention samples for claims/disputes

# Quality Assurance and Quality Control: Receipt and Storage of Fuel at Secondary Depots/Terminals



## Storage and Handling Sites

### Examples of Testing Done After Receipt into Storage Tanks

- ✓ Visual/Appearance
- ✓ Water Finding Test
- ✓ Density Reading
- ✓ Conductivity Test (For ADO/Kero/JetA1 only)
- ✓ Flashpoint Testing (For ADO/Kero only)
- ✓ Methanol Detection

- ✓ Local procedures and work instructions on product receiving and storage
- ✓ Pre-acceptance testing
- ✓ Quantity measurement
- ✓ Post-acceptance testing
- ✓ Retention samples
- ✓ Routine sampling, draining and testing (daily/weekly/monthly)
- ✓ Question: Do secondary depots/terminals test the product according to full specifications?
- ✓ Answer: No. Secondary depots/terminals do not have full laboratories. Basic field testing is performed to detect product contamination.



## **ACTIVITY Q&A: HOW WILL YOU KNOW IF....**

- Gasoline has contaminated diesel?
- Diesel has contaminated gasoline?
- Kerosene has contaminated diesel?
- Fuel oil has contaminated diesel?
- Gasoline has contaminated kerosene?
- Water has intruded the fuel?

# Quality Assurance and Quality Control: Gantry Operations (Truckloading Operations)



## Bulk Filling Gantry

### Product Loading

- ✓ Additive Injection
- ✓ Ethanol In-Line Blender
- ✓ Color/Dye

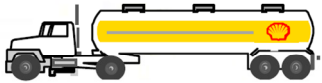
### Testing Done Before Delivery

- ✓ Visual/Appearance
- ✓ Water Finding Test
- ✓ Water Extraction Test
- ✓ Methanol Detection

- ✓ Local procedures and work instructions on gantry operations
  - ✓ Truck inspection before loading
  - ✓ Metering instruments / volume accounting
  - ✓ Injection systems / batch loading
  - ✓ Additivation
  - ✓ Ethanol blending
  - ✓ CME blending\* (if handling separate B0 and B100)
  - ✓ Visual checking
- ✓ Question: What should be checked on the truck/lorry before it is loaded?



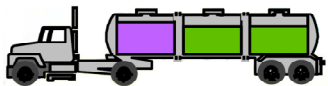
# Quality Assurance and Quality Control: Road Deliveries (Transport Operations)



Road Delivered by Contracted Fleet

**Road Delivered equipped with:**

- ✓ GPS
- ✓ Seals
- ✓ Abloy Interlock System
- ✓ CCTV
- ✓ Dashcam



Customer Pick-up

- Basic: Sealing Wires/Plates
  
- Other deterrants/detectors employed against theft/pilferage/adulteration:
  - GPS (global positioning system)
  - Electronic valve interlock system
  - CCTV
  - Dashcam

## Quality Assurance and Quality Control: Retail Sites



### Retail

#### Testing Done Before Unloading

- ✓ Visual/Appearance
- ✓ Water Finding Test
- ✓ Methanol Detection
- ✓ Delivery samples and Retention Samples

- Pre-Discharge Checklist
  - Check if correct cargo/delivery
  - Check if seals are intact
  - Check quantity\*
  - Take preliminary samples for basic testing (appearance, water detection)
- Daily/Weekly/Monthly checks at the retail site according to local instructions
  - Random sampling for re-testing (quality verification) / mobile van monitoring
  - Stocks vs sales volume analysis
  - Water-checking / water-dipping
  - Hardware integrity checking (strainers, camlocks, underground tank top cover seals, brine water monitoring)

