# Voyage Reconciliation

The global trade of crude oil, refined petroleum products, petrochemicals, vegetable oils and many more bulk liquids requires quantity measurement at various custody transfer points. Each measurement is normally executed with extreme care by a competent international or domestic independent inspection company. Small errors can adversely impact the standard calculations.

As an operator, you should ensure your nominated inspection company perform a rigorous voyage analysis and reconciliation. However, it is a good habit for the operator to carry out their own voyage reconciliations. Below is step through the high-level methodology for completing a voyage reconciliation.

# Calculation Method

## Overall Loss

Always start by looking at the Overall loss/gain:

**Calculation: Overall Loss/Gain = (D –A )/A x 100 = x% -** negative number is a loss/positive is a gain

Insurance companies rarely consider a loss greater than 0.5%, however all losses greater than 0.3% should be investigated. So if you have a loss, lets start to break it down into:

1. Load port difference
2. Transit Difference
3. Discharge Difference

## Load Port

A – Bill of Lading quantity – normally shore tank figures

B – Ships figures received at load port – should have figures with VEF applied and not applied

Firstly, lets look at the load port difference:

**Calculation: Load port difference = (B – A)/A x 100 = x%**

Always express as a percentage as it gives a better feel whether the loss is big or small. 100 tonnes lost in 10,000 tonne cargo (1%) is a lot, but in 65,000 tonne cargo not so much. The value of the loss is still the same and that can get operators and traders irritated!

## Voyage or Transit

B – ships figures at load – VEF applied

C – ships figures at discharge – VEF applied

**Calculation: Load port difference = (C –B )/A x 100 = x%**

This gives you a sense whether any product has been lost (or stolen) during the transit from load to discharge port. It can also give you an idea if measurement at load was accurate or not.

## Discharge Port

C – ships figures upon arrival at the discharge location prior to discharge

D – figures received by the shore tank – this can be a little bit difficult to obtain if you are not the receiver

**Calculation: Load port difference = (D –C)/A x 100 = x%**

## What can Cause Differences and Losses

There are many factors that impact product quantity measurement, some potential causes include:

* Water – free water and suspended water, was it measure correctly at each stage
* Temperature – how accurate was the measurement, was it representative of the tank
* Changes in product density as blending is carried out
* Layering against density, thermal or both gradients
* Simple tank or pipe leakage or theft
* Incomplete pipeline fills – was a line displacement executed?
* Instrument malfunction – did the inspector gauge the tanks or use terminal gauges
* Tank calibrations – when were the tanks last strapped, have they been modified or damage since
* Human error in measurement and/ or calculation

## What can you do to Minimize Differences and Losses

It is important to ensure:

* Appoint a competent inspection company, preferably an internationally accredited/recognized
* Nomination has clear instructions to prevent misunderstandings

Do remember that they are independent and serve both the buyer and seller. You could consider appointing a cargo superintendent (super inspector/supercargo/loss control) to solely look after your interests. Superintendents can get expensive but may be worthwhile when:

* When there is a history of differences at a load or discharge terminal
* When you are contractually exposed to the difference between load and discharge
* Using an unknown terminal for the first time
* Doubts about the competence of the inspectors