Advanced Solutions

Matrikon Mine to Port Reconciliation

Balance your supply chain
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Matrikon Mine To Port Reconciliation is a materials balancing and reconciliation solution for mining supply chains. Reconciler can be used to balance supply chains end-to-end or can be used for plants (copper, gold, platinum, etc) to reconcile the entire facility using the simultaneous, multi-component reconciliation method.

This method reconciles the entire facility (inventories and streams) for mass, fractions and components. Reconciler is mathematically rigorous, fast, handles measurements, movements and inventories and reconciles arbitrary time periods. It handles linear, non-linear equations and inequality constraints and provides intelligent diagnostics to identify problems.

Matrikon Mine to Port is Powered by Matrikon, which represents vendor neutrality. This product works with third-party control systems and applications.

FEATURES & BENEFITS
• End-to-end simultaneous reconciliation of mass, fractions and components
• Early identification of process problems
• Diagnostics to find process and data errors
• Calculate volumes, mass and component balancing for any period
• Storage and reporting of multiple cases
• Graphical web reports to visualise plant and processes

Matrikon Mine To Port Reconciliation (Reconciler) is a materials balancing and reconciliation solution for mining supply chains. Reconciler can be used to balance supply chains end-to-end or can be used for plants (copper, gold, platinum, etc) to reconcile the entire facility using the simultaneous, multi-component reconciliation method.

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Typically, an engineer responsible for reconciliation demands:
• An easily to maintain the Metal Balancing model
• Automated data management
• A fast and robust engine for calculating volumes, mass and component balancing for any time frame
• Diagnostic tools to assist in finding process and data errors
• Graphical web reports to visualise the plant and process

Reconciler addresses these issues – the common reason why other reconciliation packages fail.
THE FOUNDATIONS

The foundation of Reconciler is the SOA environment. This consists of:

Plant Object Model
The Plant Object Model is configured to represent the network structure of the organisation. (Business Units, Mine Areas, Plants, Plant Areas, Plant Nodes, Streams, Inventories, Equipment). The Plant Object Model includes a Data Dictionary that references where data is in other systems. Typically the data resides in plant historians and Laboratory Information Management (LIMs) systems.

New plant, plant areas, streams and inventories can in inserted into the Plant Object Model without having to change the metal balancing solution or report formats. Hence the maintenance of a complex reconciliation is easy to configure and maintain.

Web Service
Honeywell’s integration service for applications participating within the Service Oriented Architecture (SOA) is the Intelligent Adaptor. Using the Data Dictionary, Adaptors obtain the raw data on demand from the other systems that is used in the reconciliation process.

Matrikon Mine To Port
Generally data is retrieved and calculated on demand from the underlying source systems. This ensures integrity as there is only one version of the data. In certain circumstances data can be stored in Matrikon Mine To Port – the Internal Store. The results of a reconciliation process are stored in Matrikon Mine To Port thus avoiding the need to create new tags values for each reconciliation type in the Plant Historian or LIMs system.

Visualisation
Matrikon Mine To Port, web based graphical report tool can be configured to show the raw data that exists in the plant historian and the LIMs systems alongside the reconciled results that reside in Matrikon Mine To Port. This tool allows plant engineers to build schematics of the plant and plant areas to visualise the raw and reconciled values of nodes, streams and inventories.
**SIMPLIFYING THE WORK FLOW.**

**Defining the Reconciliation Scope**
The Plant Object Model defines the network structure of the organisation. The reconciliation scope or coverage required is simply requested in the Area/Unit Request browser. Any new streams or inventories inserted into the area/unit are automatically included in future reconciliations.

**Initiating the Reconciliation**
The reconciliation can be run for any time frame – shift, week and month. Reconciler picks up its data and the model from the database and then lets the user manipulate the information. Data can be changed within Reconciler without affecting the raw information. Multiple what-if scenarios can be tested, reconciled, adjusted and when the user is ready, saved to the database.

Data can be saved as an official reconciled (locked) case or can be saved as other cases for later review. Cases can be configured as appropriate to allow tracking of many versions of data.

As a minimum there usually are:
- Raw data (untouched from source systems) Basis case – Engineer’s adjusted numbers
- Basis (Locked) case – Engineer’s Final adjusted numbers
- Reconciled case – Engineer’s Reconciliation numbers
- Reconciled (Locked) case – Reconciliation
- Engineer’s Final Reconciliation numbers

**Diagnostics**
Upon Reconciler executing, a diagnostics screen is displayed showing the likely cause of any errors for the stream as either a Measurement Problem or a Constraint Problem and recommends an alternative value to use for the measurement in order to bring closure to the reconciliation process.
Measurements (Variables)
Reconciler also displays the original instrument value along with the recommended value Reconciler has assigned to the variable to bring the plant/unit into mass balance. To assist the user solvability is displayed for rapid identification of problems. The responses will be either: Equations or User Defined Expressions

Equations
When initiated, Reconciler automatically generates an equation set, checks for any syntax errors, solves and displays the results.
USER DEFINED EXPRESSIONS

Reconciler’s User Defined Expression Builder allows engineers to create expression to suit the plant specific requirements.

- Inventory values must be greater than 0
- Composition must total 100%

MATRIKON MINE TO PORT RECONCILIATION
— EASE OF USE

Reconciler allows users to resolve and reconcile a facility quickly. Each case or version is saved with full audit details. The diagnostics provided allows the engineer to focus on process and data problems. Past reconciliations can be retrieved showing the raw and reconciled results along with notes used to describe the process and outcomes.
Matrikon Mine To Port Reconciliation allows users to finalise a reconciliation quickly, without having to review hundreds of transactions & measuring points.