

# Eka Stockyard Management

## Overview

The raw materials industry faces the ongoing challenge to improve business performance through technology. To maximize efficiencies, stockyards or bulk handling sites require real-time visibility into equipment, inventories, and associated quality levels across the supply chain. Today's business environment demands real-time information from a single data source with proven reliability.

## Business challenges

### Targeting maximum returns

Bulk handling facilities are under constant pressure to increase throughput and achieve exacting cargo requirements. Receiving, transfer, and loading functions must become more efficient and planners and schedulers must maximize process visibility in order to make optimal business decisions. To maximize returns, an integrated approach is needed.

### The need for real-time information of stock inventory

Operators require a process solution that captures all site movements data in real-time. The ability to integrate quality information with this real-time data allows decision-makers to develop cargo load plans that satisfy customer requirements without waste.

### A real-time, integrated view

Visibility of stockpiles and machines at the source is not enough. A complete, integrated view that includes process and quality information is needed for real-time decision making, dynamic responses to process variations, and efficiently satisfying order specifications.



# Eka's Stockyard management system

The Eka Stockyard management system includes process management, task execution, business intelligence, stockpile management, anti-collision systems and quality management systems tailored for the commodity supply chain. The platform includes the following software:

## Site Automation Control

A dynamic site management and control system, incorporating high level process planning, scheduling, task execution, and material tracking

## 3D Stockpile Manager

A real-time 3D volumetric model of stockpiles for flexible machine control, quality analysis, and prediction

## Quality Management System

A detailed analysis tool to inspect and determine the quality of raw materials in 3D

## 3D Anti Collision

A system using 3D modelling of mobile machines and structures to provide positional awareness for protection and optimization of equipment movements

## Collision Avoidance System

A range of control system features that aim at reducing the frequency of potential, future, collision events pre-emptively

# Site Automation Control (SAC)

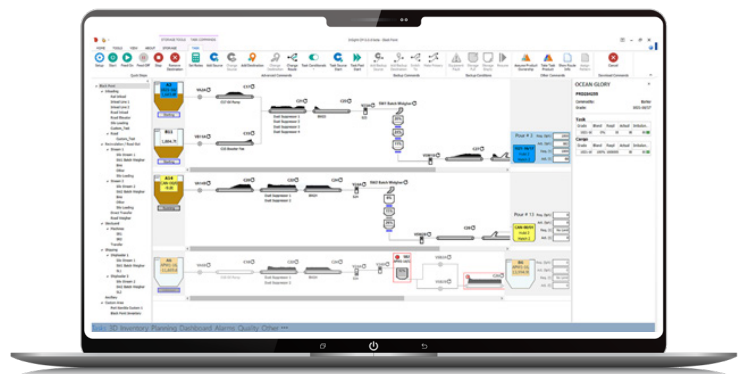
With Eka Site Automation Control, site operators can graphically see all assets, and effectively plan receipt, transfer and loading tasks. The software provides site management and control that improves product integrity, uniformity, and production efficiency, leading to a reduction in operating costs.

## Key features

- Task execution with dynamic display
- Configurable route metrics
- Auto feed rate and blend control with detailed material tracking

## Key benefits

- Better utilization of site assets using smart sequence interlocking to control equipment based on material location; for example, turning off machinery when it is not required
- Improved operational awareness and control through real-time material tracking and smart task control. Dynamic user interface displays only the most relevant information
- Real-time visibility into all operations using a comprehensive reporting suite including operations, productivity, equipment usage, tonnes passed over equipment, run hours, inventory, quality data, and maintenance and delay accounting



# 3D Anti Collision

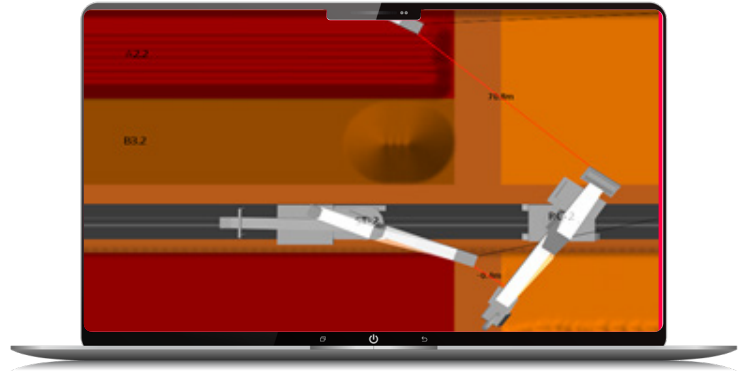
3D Anti Collision protects mobile machines from potentially hazardous interactions with other mobile machines and structures at a terminal. Using solid modelling to provide full 3D anti-collision protection, the software proactively prevents collisions and allows adjacent machines to safely work together minimizing production downtime.

## Key features

- Ability to freely move camera views in 3D to observe machine positions from any angle
- Pre-defined and user configurable exclusion zones
- Supports full range of mobile machine position instrumentation

## Key benefits

- Gain a real-time view of your site with full 3D anti-collision protection based on CAD and survey data
- Leverage 3D models of machines to allow safe passing and smart relocations, maximizing productivity
- Allow adjacent machines to safely operate together — optimize working protection distances without compromising anti-collision system integrity



# 3D Stockpile Manager

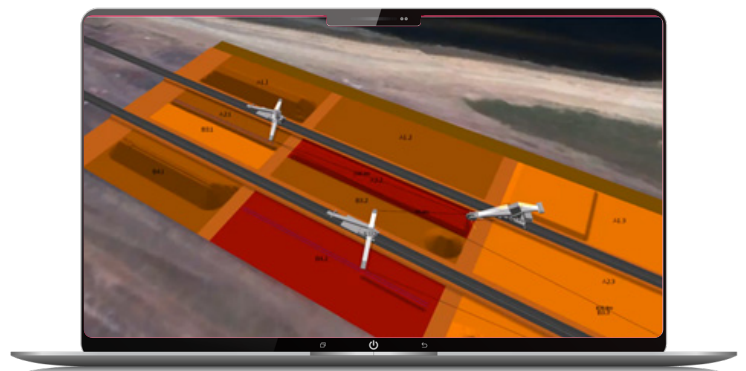
3D Stockpile Manager provides a complete 3D view of stockpiles. Movement data — including source and destination, intermediate equipment, and start and end times — are tracked with each commodity movement. Detailed analysis tools to visualize, group, and calculate quality results are also included. In addition to an historical view of past quality results, you can simulate future results when planning stacking and reclaiming operations.

## Key features

- 3D view of the physical stock, including quality tracking information, based on material tracking and material physical parameters
- Extremely accurate stockpile height information with resolution to less than 1mm
- On-the-fly change capability of stacking patterns

## Key benefits

- Make better stacking decisions by creating user defined stacking patterns based on performance, capacity, or quality. Operators have the ability to modify and implement stacking patterns in real-time
- Increase revenues by making better decisions using 3D dynamic 'fly-around' views of stockpiles
- Maximize stockpile and yard capacity with consistent stacking results and true infill stacking



# Collision Avoidance System (CAS)

Eka Collision Avoidance System is a range of control system features which aim at reducing the frequency of potential, future collision events. The CAS is designed to be a 'pre-emptive' system that detects the future possibility of Anti-Collision System (ACS) events based on look-ahead awareness of planned operations. The primary purpose of the CAS is to avoid production constraints or conflicts due to potential interactions between mobile machines.

## Key features

- 'Task envelope view' to visualise future activity (based on active tasks), to identify areas of upcoming work and possible future conflicts
- Operate in 'monitor only' mode or make manual adjustments based on system alerts or configure system to automatically execute a range of preferred actions based on business objectives
- Apply machine limits and permissions automatically to ensure the potential ACS event is avoided according to the selected priority



## Key benefits

- Optimize protection by allowing adjacent machines to safely operate together
- Make operations safer and improve stockyard management by controlling machine interactions remotely with 3D evaluations of stockyard plans
- Avoid collision related delays by tackling situations with the potential for collisions using real-time, automated responses

# Quality Management System (QMS)

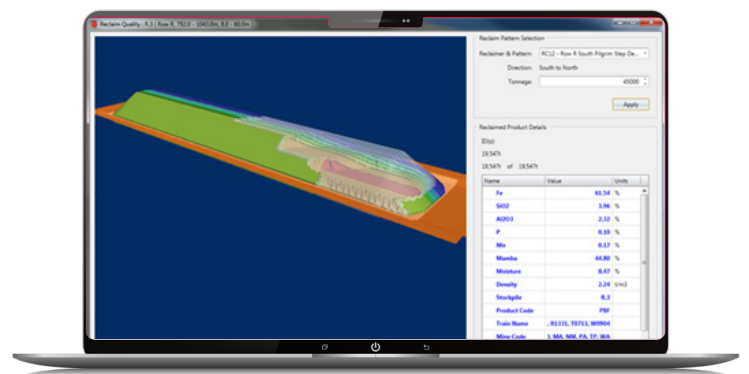
QMS helps users track and extract the desired quality in stockpiles with a true volumetric physical 3D stockpile model of material quality. The system equips operators to better match inventory quality specifications to sales quality specifications and increase throughput and site efficiency.

## Key features

- Quality analysis – Inspect quality of material in 3D, use filters for analysis and find problem material before shipment
- Check quality results for a particular reclaim scenario or try different blends and reclaim patterns to see expected results
- Compare planned v/s actual outloaded quality

## Key benefits

- View aggregated quality information for a stockpile or region including cut plane view of a stockpile region or easy identification of in and out of specification materials
- Comprehensive reporting suite to detail origin of material, destination quality and quality of material currently being loaded.
- Improve product integrity, uniformity, and production efficiency with real-time visibility to meet quality targets





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[www.eka1.com](http://www.eka1.com)

[info@eka1.com](mailto:info@eka1.com)



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## About Eka Software Solutions

Eka Software Solutions is a global leader in providing digital solutions for Trading & Risk, Supply Chain Management and Financial Services driven by Cloud, Blockchain, Machine Learning and Analytics. The company's best-of-breed solutions serve the entire trading value chain across agriculture, energy, metals and mining and manufacturing markets.

Eka's Cloud Platform provides advanced analytics, one source of data and an automation engine, providing maximum flexibility and investment protection as business needs and market requirements change. Eka is committed to ensuring its 100+ clients can work from anywhere and collaborate across ecosystems within a secure and trusted environment.

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