Quoreka 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. Receival, transfer, and loading functions must become more efficient and planners and schedulers must maximize process visibility 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.

FACT SHEET

Quoreka's Stockyard Management System

The Quoreka 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 Quoreka Site Automation Control, site operators can graphically see all assets, and effectively plan receival, 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

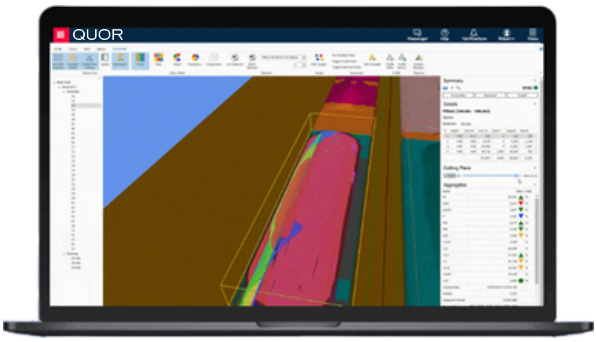
Key benefits:
- Better utilisation of site assets using smart sequence interlocking to control equipment based on material location; for example, turning off machinery when it is not required
- Improved operational awareness and control through real-time material tracking and smart task control. Dynamic 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 Quality Management

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
- Simulate stockyard plans when planning stacking and reclaiming operations to see expected Quality results
- Compare planned v/s actual out loaded quality



Key benefits:

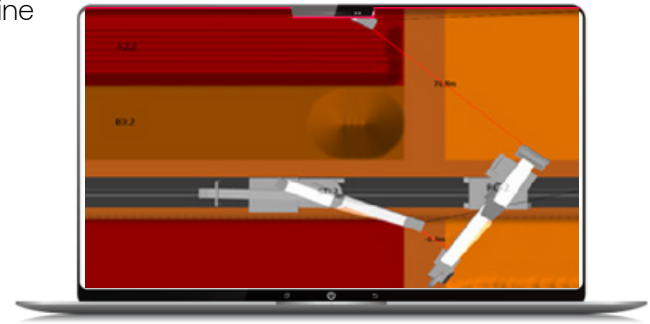
- View aggregated quality information for a stockpile or region including cut plane view of a stockpile region or easy identification of in and out of specification materials
- Comprehensive reporting suite to detail origin of material, destination quality and quality of material currently being loaded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

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:

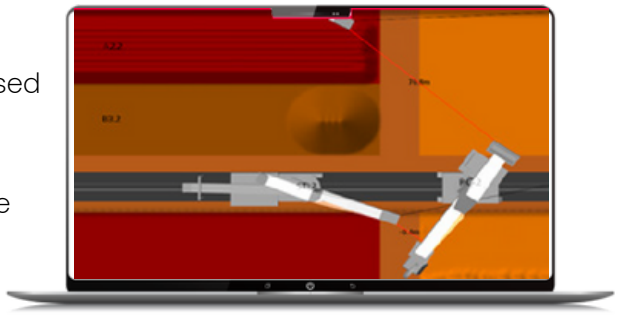
- Gain a real-time view of your site with full 3D anti-collision protection based on CAD and survey data
- Leverage 3D models of machines to allow safe passing and smart relocations, maximising productivity
- Allow adjacent machines to safely operate together - optimise working protection distances without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

Collision Avoidance System (CAS)

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 purposeof 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:

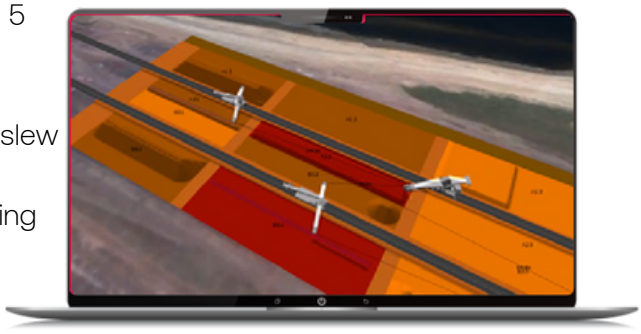
- Optimize protection by allowing adjacent machines to safely operate together
- Make operations safer and improve stockyard management by controlling machine interactions remotely with 3D evaluations of stockyard plans
- Avoid collision related delays by tackling situations with the potential for collisions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

3D Stockpile Manager

3D Stockpile Manager provides fully autonomous operation of mobile machines as well as visualization of the stockyard. Advanced control algorithms optimize both stacking and reclaiming based on detailed 3D stockpile modelling and material flow predictions. This not only increases throughput but also available space in the stockyard.

Key features:

- Extremely accurate stockpile shape modelling based as few as 5 machine tags and no expensive scanning equipment required
- Optional integration with LiDAR/radar scanning equipment
- Optimised volumetric reclaiming minimize air digging maximise slew rates
- Optimal infill stacking and dwell control with user-defined stacking patterns based on performance, capacity, or quality
- On-the-fly change capability of stacking patterns



Key benefits:

- Increase yard throughput with optimised autonomous machine control
- Maximise stockpile and yard capacity increase by as much as 10% with consistent stacking results and true infill stacking
- Adjust yard strategy on the fly to suit environmental or logistics situations even with partially complete stockpiles

Contact

Speak to an expert today to learn more about how Quoreka can add value to your operations.

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