Metals, Mining & Minerals



Eliminate Down-time and Improve Quality

Adroit Technologies

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Adroit Solutions

Adroit Technologies concerns itself mainly with R&D, Production, Sales & Marketing, Training and Support of software products for Automation, SCADA, MIS and MES solutions. In addition, Adroit Technologies has a professional services arm, known as Adroit Technologies Technical Services that consults in and develops customised industrial IT, MIS and MES solutions for customers.

The **Mining, Metals & Cement Industries** are vast and complex one and the Adroit SCADA is ideally suited to assist in the efficient monitoring and control of even the most complicated production plant.

The rigid and quality driven nature of this industry is ideally suited to the Adroit SCADA/HMI product. The time tested and proven reliability of the product sees Adroit being used by large producers to safely run these valuable and strategic assets.

The Adroit architecture and openness offers companies a unique capability of not only traditional SCADA/HMI functionality but the ability to integrate all aspects of their operations. By adopting a more holistic approach to Operations Management significant savings and operational efficiencies can be realised.

In this sector, Adroit is uniquely placed to ensure a superior quality of supply in all aspects of the operations and management of these facilities.

Adroit SCADA Capabilities and Benefits:-

- Process Visualisation
- Process Events and Alarming Management
- Quality Management
- Historical Data Logging and Trending
- Fully Object orientated
- Process Improvement / Built in Auditing functionality
- Reporting and Analysis
- Integration into Business Applications

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Metals, Mining & Minerals

Metals, Mining & Cement

Target Areas

- Diamond
- Gold
- Aluminium
- Phosphate
- Coal

Challenges

- Energy Efficiency
- Tracebility
- Predictive Maint.
- Remote Monitoring
- Reporting

Solutions

- SCADA
- PLC
- HMI
- LVS
- High Power VSD



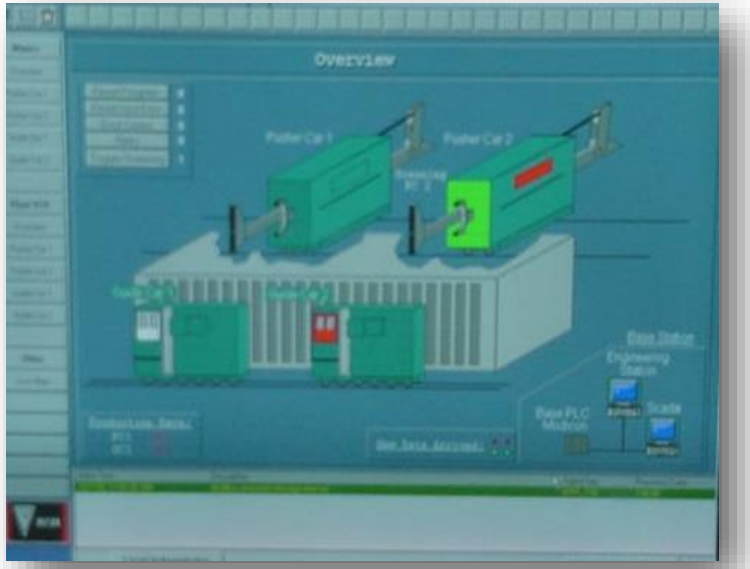
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Saldanha Steel, South Africa

Saldanha Steel is a South African steel company which was originally formed as a partnership between Iscor Limited and the Industrial Development Corporation (IDC). Saldanha Steel is part of Mittal Steel South Africa which in turn is part of global steel company Arcelor-Mittal. Saldanha Steel, an ultra modern, instrument intense, 24/7 steel processing plant relies on the Adroit SCADA HMI to monitor operational pipeline consumption, environmental data and plant emissions.

Saldanha Steel is a compilation of four plants, each with its own consumptions and processing functions, namely the Iron making plant, the Steel making plant, the Caster and the Mill. In order to visualize the plants total operations and monitor expensive consumptions, Saldanha Steel installed a stand-alone Adroit SCADA HMI as its Central Monitoring System (CMS) with a server located at the Meltshop and an interface workstation located at the Central Services Monitoring Room.

Adroit Stand-Alone
- 2500 Scan Points and 12 Remote Client Connections



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Modikwa Platinum Mine, South Africa

Modikwa Platinum Mine is an independently managed, 50:50 joint venture between ARM Mining Consortium Limited and Rustenburg Platinum Mines Limited. The mine is on the border of the Mpumalanga.

Modikwa is a 200 kTPM concentrator with controlled by three Siemens S7-400 "Hot-Standby" PLC's. State of the art "Profibus", "Industrial Ethernet" and ASI bus systems have been utilized extensively eliminating the need for any conventional I/O. The plant has a total of 580 drives all equipped with the Siemens Simocode.

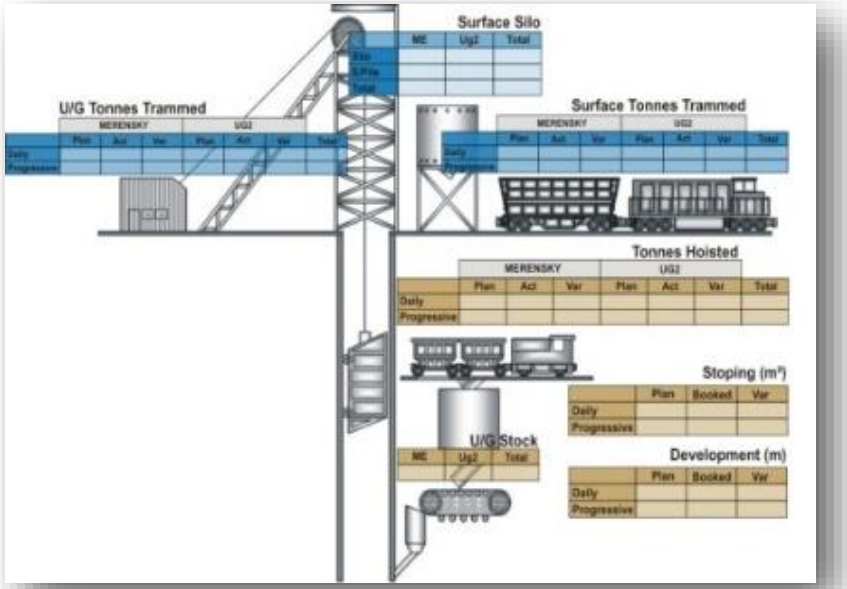
The flotation plant has a total of 70 flotation cells that are each equipped with Level control and Air flow control loops.

The Adroit SCADA system is "Dual redundant" with automatic switchover in the event of a failure of any component.

Adroit Active Cluster

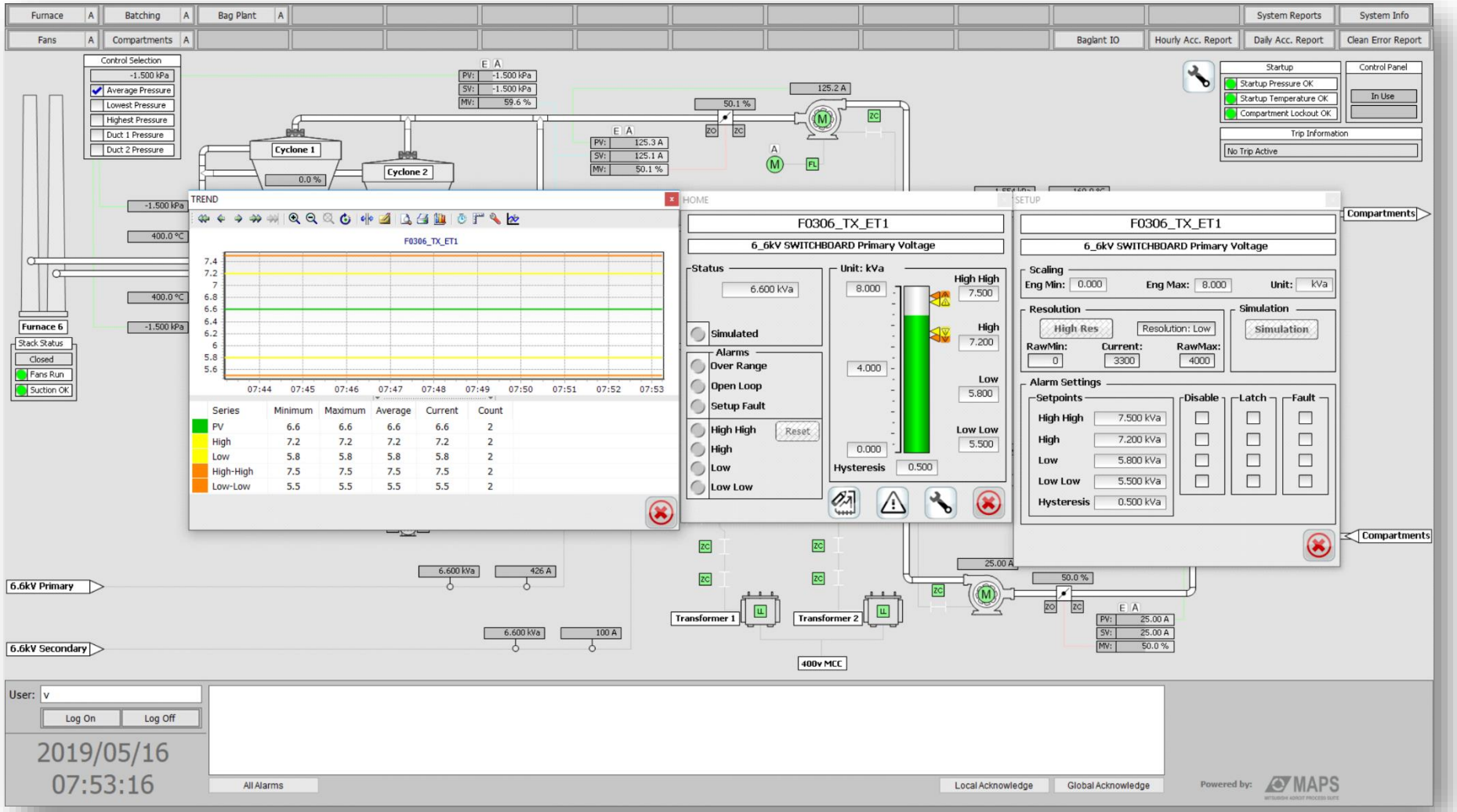
– 25 000 Scan Points and 5 Remote Client Connections

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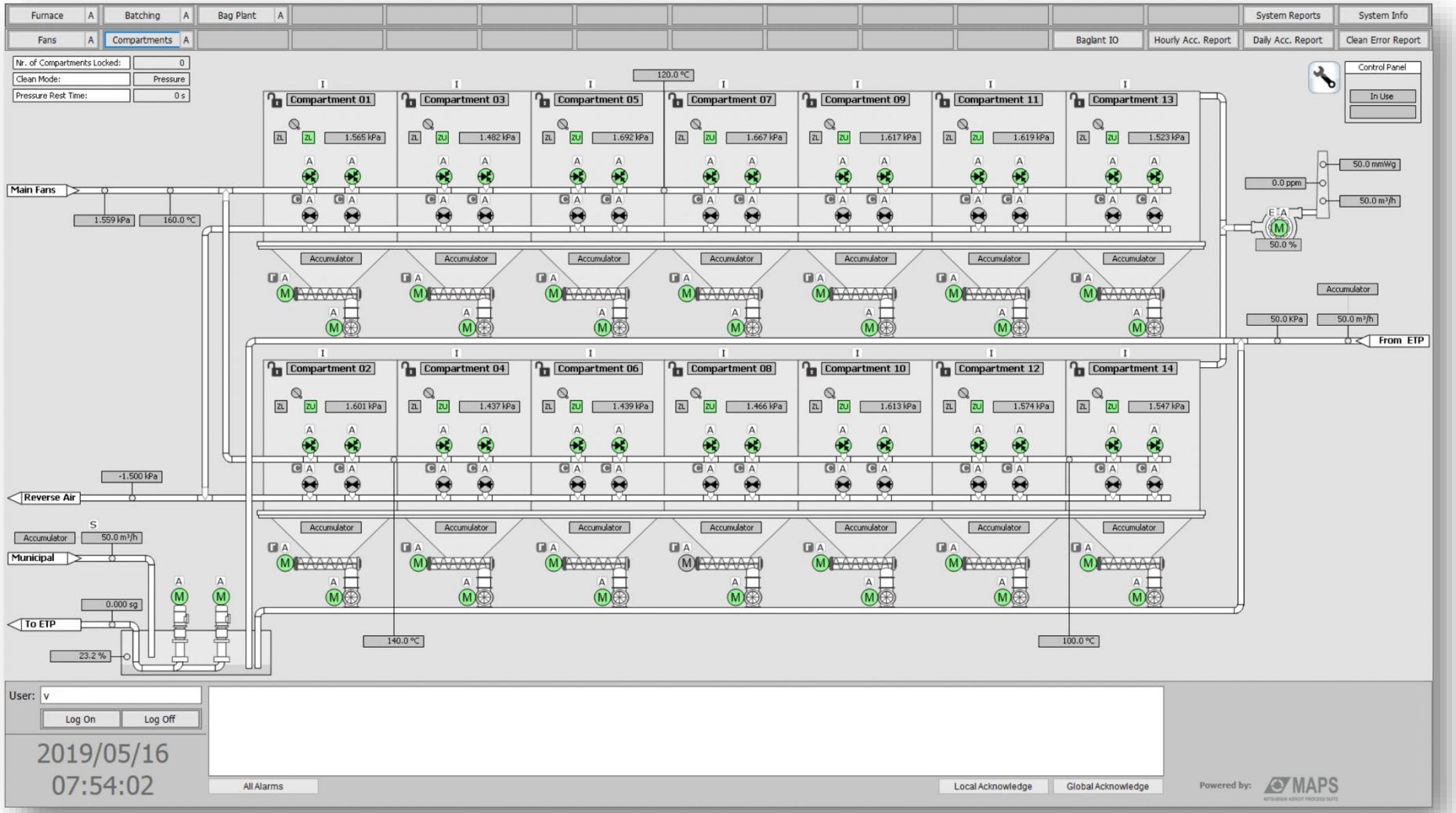
Bag Plant Control System, South Africa



Metals, Mining & Minerals

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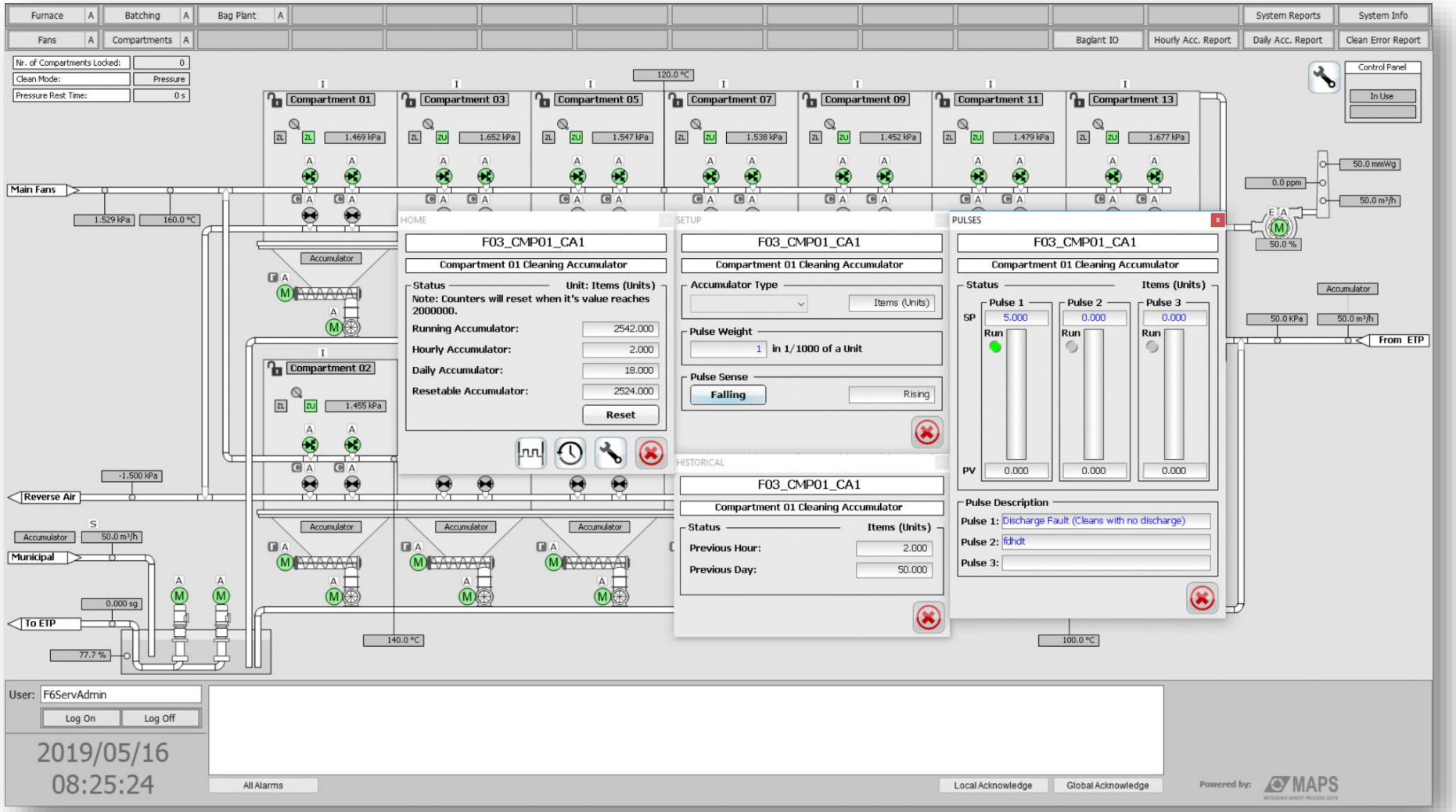
Bag Plant Control System, South Africa



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Bag Plant Control System, South Africa



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Highveld Steel, South Africa

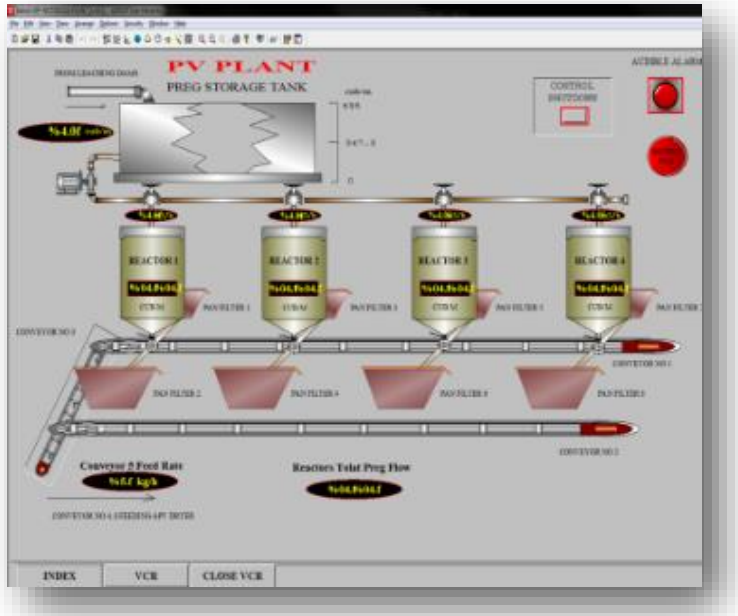
Highveld forms part of Evraz, one of the world's largest vertically integrated steel and mining businesses, registered in Luxembourg. Evraz produced 16.3 million tons of crude steel in 2007, making the company one of the 15 largest steel producers in the world.

The sites SCADA system consists of nine 984 PLCs of various brands. The plants are linked by a Modbus+ protocol network loop, via an SA-85 card driver to the Adroit system. All plant PLC's use input and output coils configured in Adroit which further map the operations addressing requirements.

The intranet network links all PCs with Ethernet addresses to monitor all network PC's.

The SCADA system is linked via its own van SCADA network, with 19 computers on the network and 6 servers.

With the addition of the planned chemical plant, the network will consist of a total of 21 PCs and 8 servers.



Adroit Active Cluster
– 50 000 Scan Points and 40 Remote Client Connections

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Debswana Damtshaa Mine, Botswana

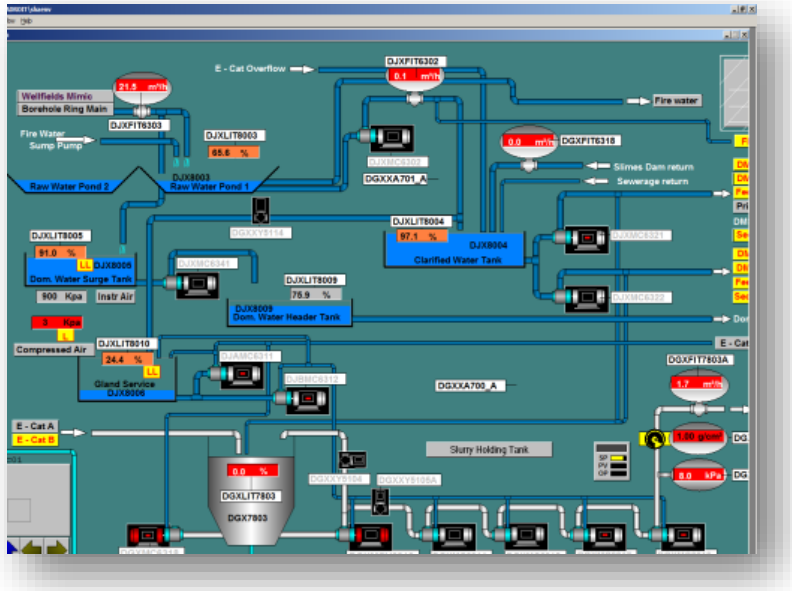
Debswana is the world's largest diamond producer by value. The company has operations at *Jwaneng, Orapa, Letlhakane and Damtshaa*. The main purpose of Debswana is to mine and recover gem and industrial diamonds. Although Debswana uses the most *up-to-date technology* to carryout its business, it is The technology, the people it employs and the skills they bring that makes Debswana a successful operation.

The Damtshaa diamond mine is a diamond mine located in Botswana about 220 kilometers (140 miles) west of Francistown. Damtshaa is of open pit construction, located on top of four distinct kimberlite pipes of varying ore grade. Themine is forecast to produce about 5 million carats (1,000 kg) of diamond from 39 million tons of ore over the projected 31-year life of the mine.

Adroit products are used for the control and monitoring of the ore crushers and ore delivery systems.

Adroit Active Cluster

– 50 000 Scan Points and 8 Remote Client Connections



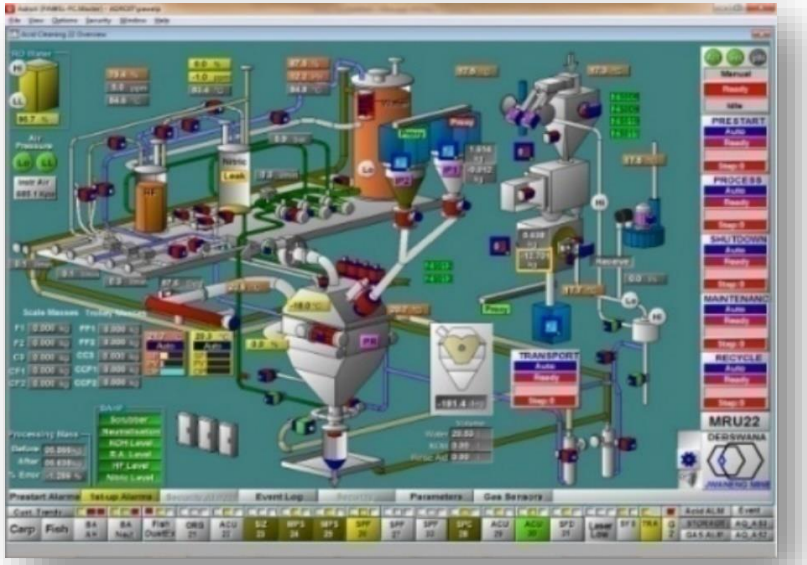
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Debswana Jwaneng Mine, Botswana

Jwaneng lies in south central Botswana,160km southwest of Gaborone. Jwaneng Mine contributes 60-70% of Debswana's total earnings. The mine produces 9.3 million tons per year of ore and an additional 37 million tons per year of waste rock. The mine is located on three kimberlite pipes that converge near the surface, covering 520,000 square meters at ground level. In 2003, the mine produced 14.3 million carats (2860kg) of diamond. The recoverable ore grade at the mine is about 1.25 carats per ton (250\mg/t).

This unique plant was a project that fully automated the sifting, sizing and sorting of diamonds. The idea being that no human operator would be involved in the entire process. The plant is complex and the control and monitoring critical to the recovery process.

Adroit Active Cluster
– 50 000 Scan Points and 20 Remote Client Connections



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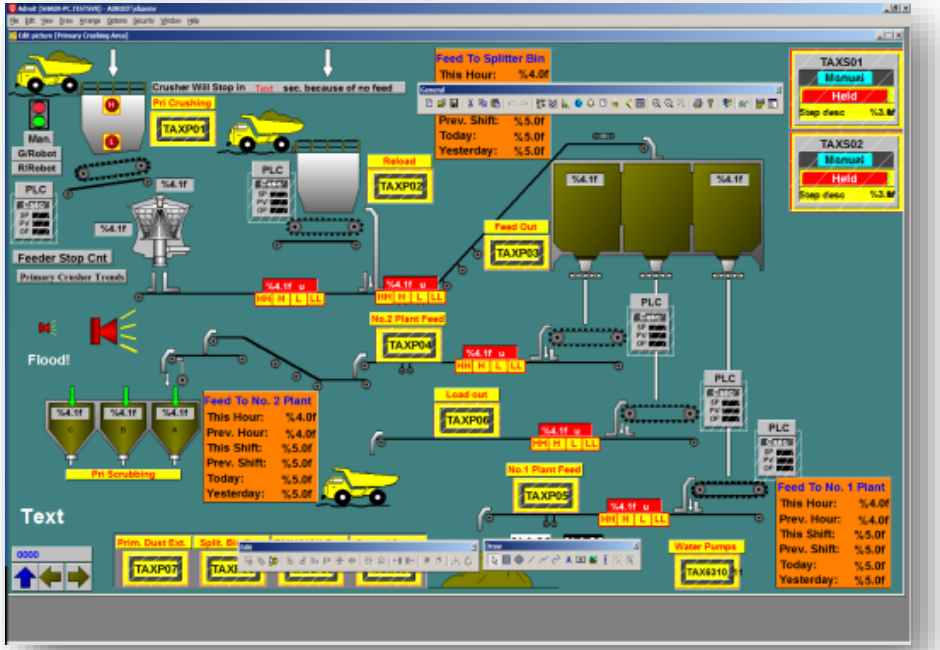
Debswana Orapa Mine, Botswana

The Orapa diamond mine is the world's largest diamond mine. The mine is located in Orapa, a town in the Boteti Sub-District of Botswana about 240 kilometers (150 miles) west of the city of Francistown.

Adroit is used on the crushers, conveying, recovery operations, borehole and water recovery as well as the water treatment plants on the mine. The Orapa mining operations are mostly run by hot standby clustered Adroit servers with multiple client licensing. This is a completely automated recovery plant (CARP)that boasts more than one million real-time tags being read from more than- 25 Siemens S7 400 PLC's.

Adroit Active Cluster

– 50 000 Scan Points and 30 Remote Client Connections



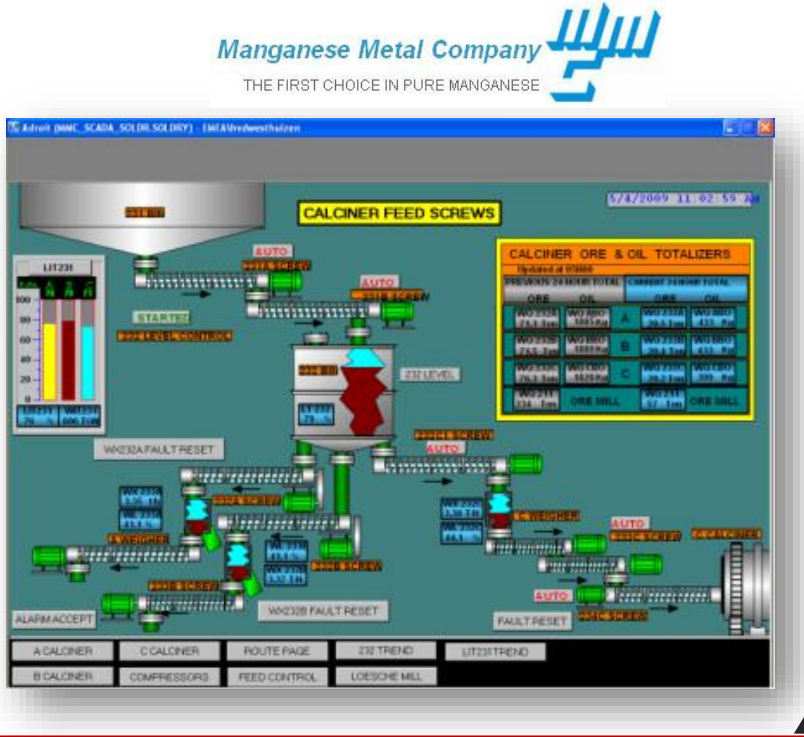
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Manganese Metal Company, South Africa

The Manganese Metal Company (MMC) is the single largest producer of pure electrolytic manganese metal in the world. The production facility is located in Nelspruit, in the Mpumalanga province of South Africa. Manganese Metal is manufactured using the process of electroplating and MMC have been using the Adroit SCADA since choosing it as their SCADA/HMI when they upgraded their legacy control system in 2000.

Operations at MMC is currently controlled via 12 SCADA machines each connected to a Programmable Logic Controller (PLC) varying from old Modicon 984's to the latest Telemecanique Premium PLC's. The PLCs are all stand alone but the 12 SCADA machines are connected via an office network.

5 Sites with Adroit Stand-Alone
- 1500 Scan Points and 1 Remote Client Connection each



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Mammatwan Manganese Mine, South Africa

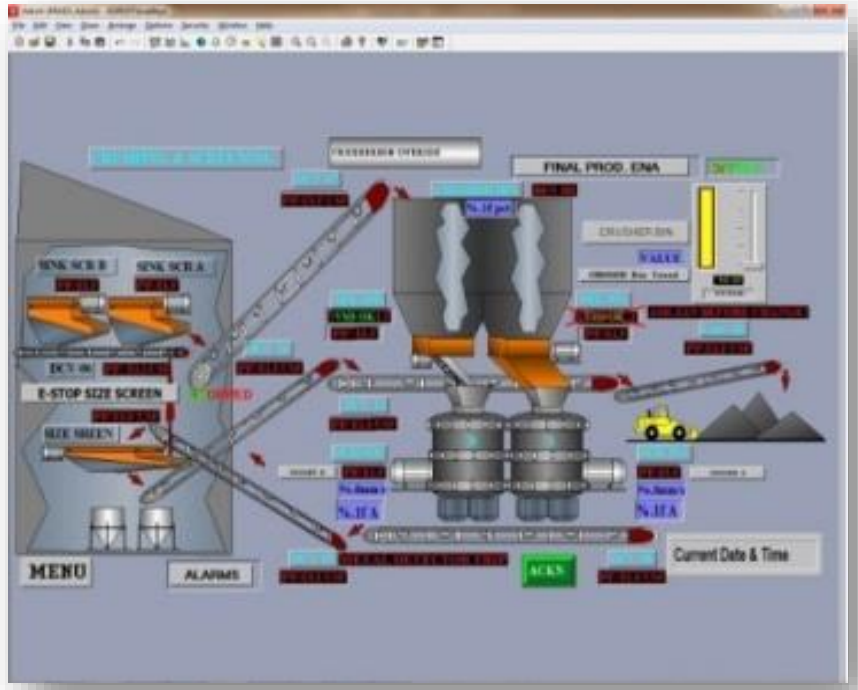
Metals, Mining & Minerals

Samancor Manganese is the world's largest integrated producer of chrome and manganese units and is 60 per cent owned and operated by BHP Billiton. Adroit is used at a number of the operations including Mammatwan and Wessels mine and the Tubatse Ferrochrome.

The town of Hotazel in the Northern Cape region of South Africa is home to Samancor's Mammatwan open-quarry manganese ore mine and sinter plant, and Wessels underground manganese ore mine. Adroit is used to run the entire mining operations made up of seven areas. In addition, Alarm Management and Analysis and the Adroit SCADA Intelligence are used to drive operational excellence and the mines reporting requirements.

Adroit Active Cluster
– 50 000 Scan Points and 5 Remote Client Connections

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Rare Earth Minerals Mine, South Africa

Namakwa Sands undertakes the mining and beneficiation of heavy minerals. The operation is located on the west coast of South Africa and operates facilities at three separate sites. The mine and the concentration plants are located at the Brand-se-Baai, 385km north of Cape Town.

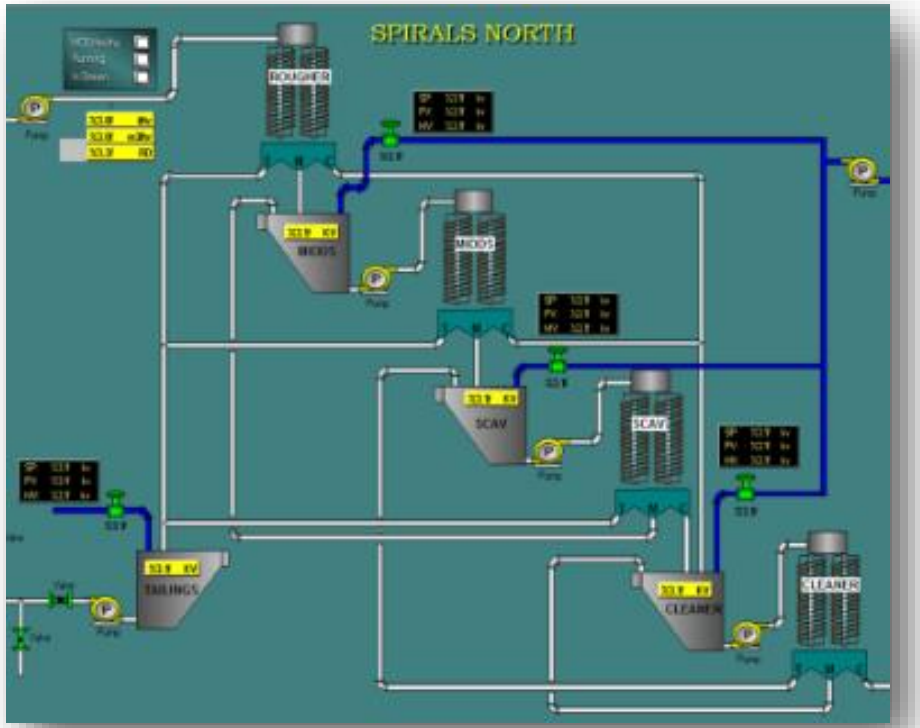
The mining concentrate is transported to the mineral separation plant by truck. The mineral separation plant is located at Koeknaap.

Here Ilmenite and Zircon are recovered before the products are transported to the smelter by rail. The smelter is based close to Saldanha Bay.

Namakwa Sands operates two furnaces where Ilmenite is smelted to produce titanium slag and pig iron. The Namakwa Sands operation started in 1994 and is one of the largest mineral sand operations in the world.

Adroit Active Cluster

– 50 000 Scan Points and 10 Remote Client Connections



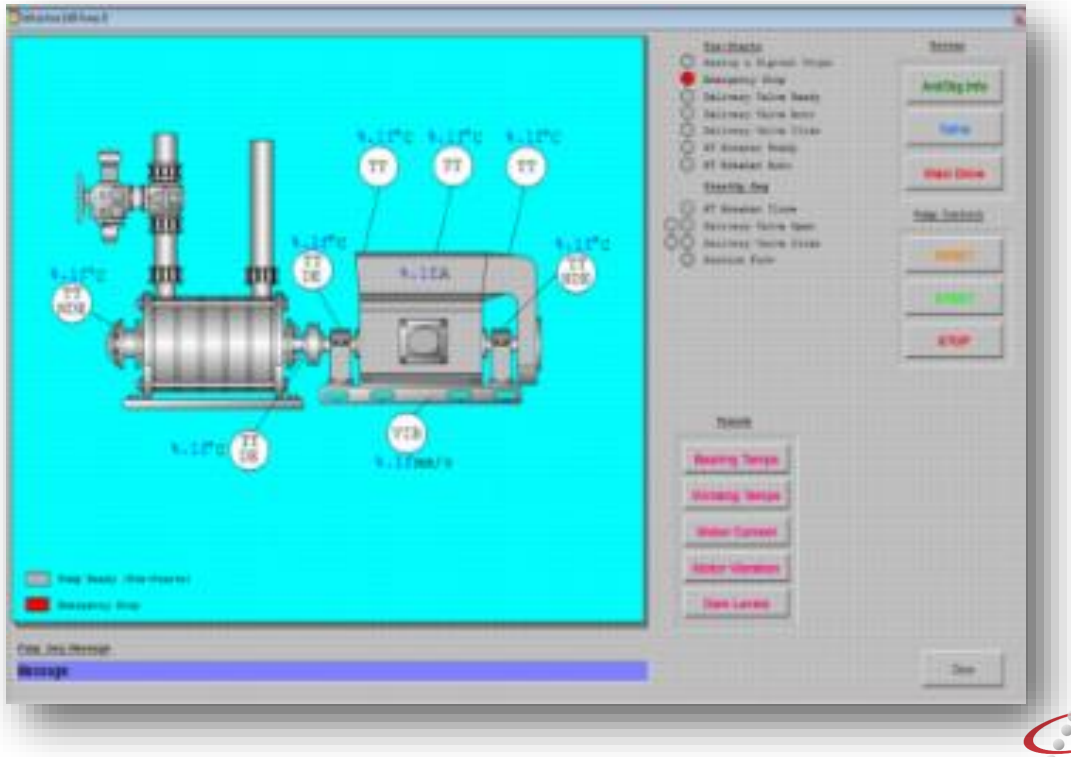
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Harmony Gold Mine, South Africa

Harmony Gold (NYSE: HMY) is the third largest gold mining company in South Africa , the 12th largest in the world (2009) and the 5th largest gold producer in the world. Harmony and its subsidiaries conduct underground and surface gold mining and related activities, including exploration, processing, smelting and refining

Adroit is used in the monitoring and controlling of the liquid Cyanide addition into the CIL tanks and monitors the lime PH in slime as well as tonnage of the slime that is going back to the slime dams after gold extraction.

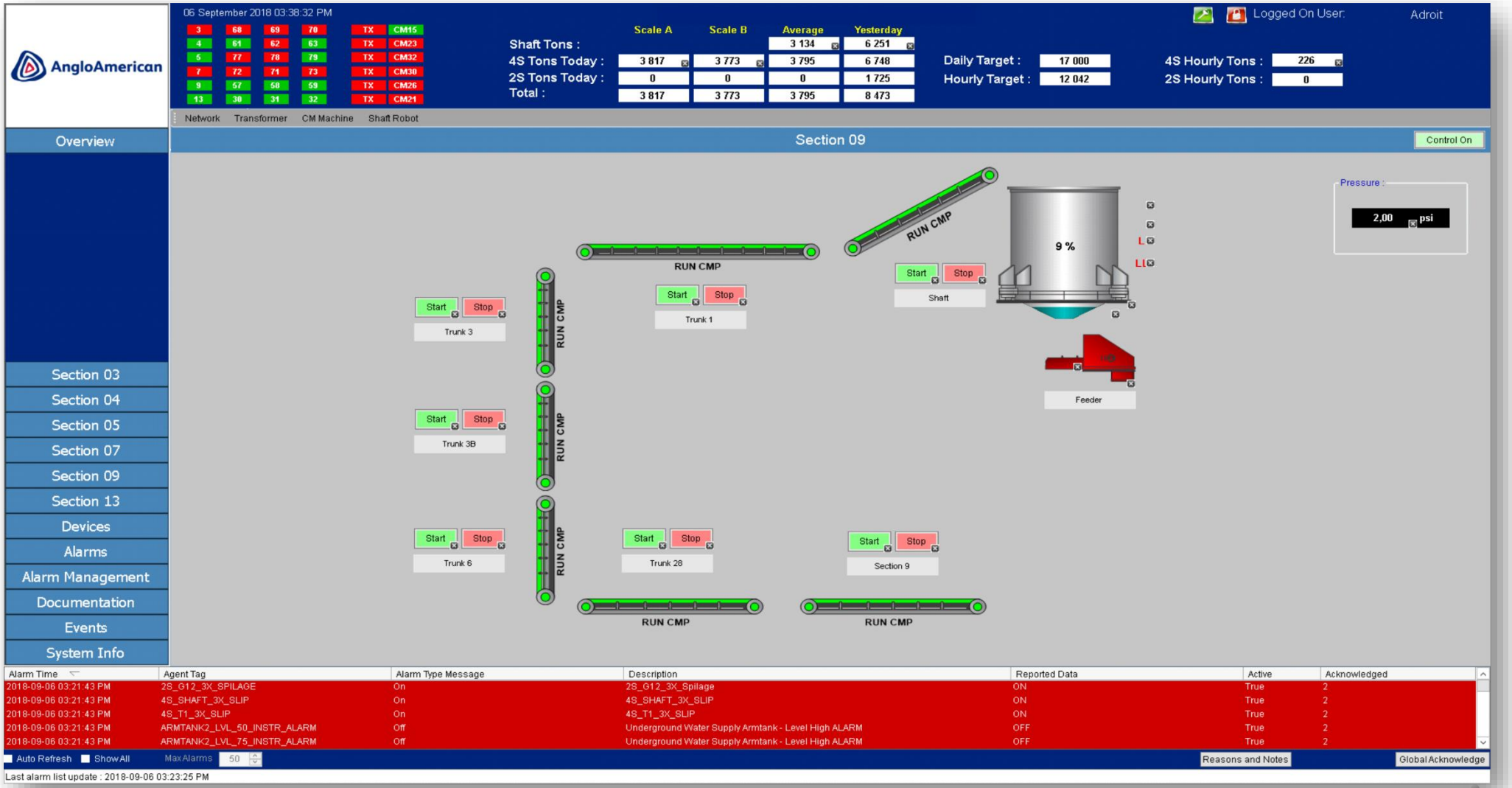
Adroit Stand-Alone
- 300 Scan Points and 4 Remote Client Connections.



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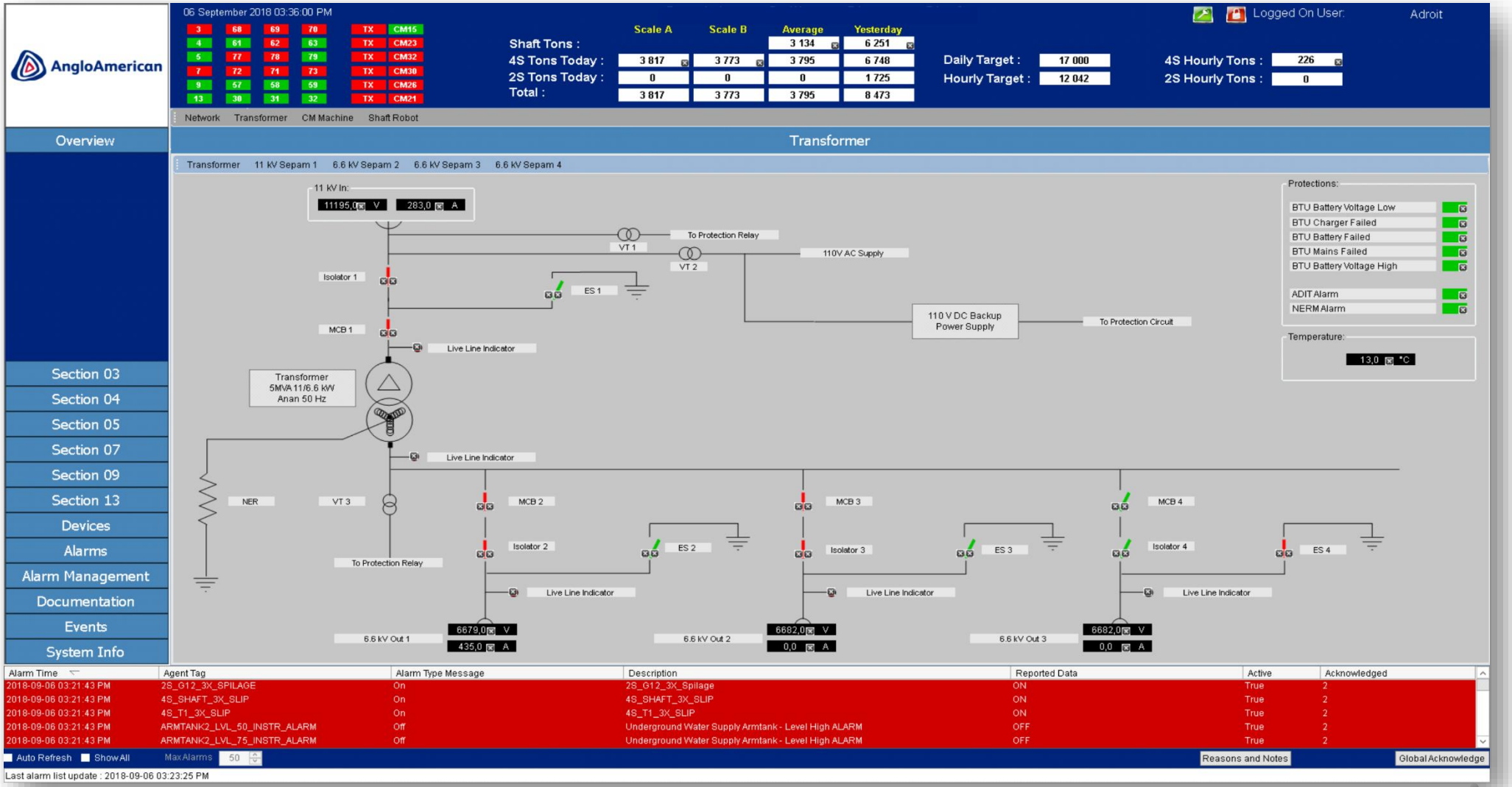
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Anglo American, South Africa



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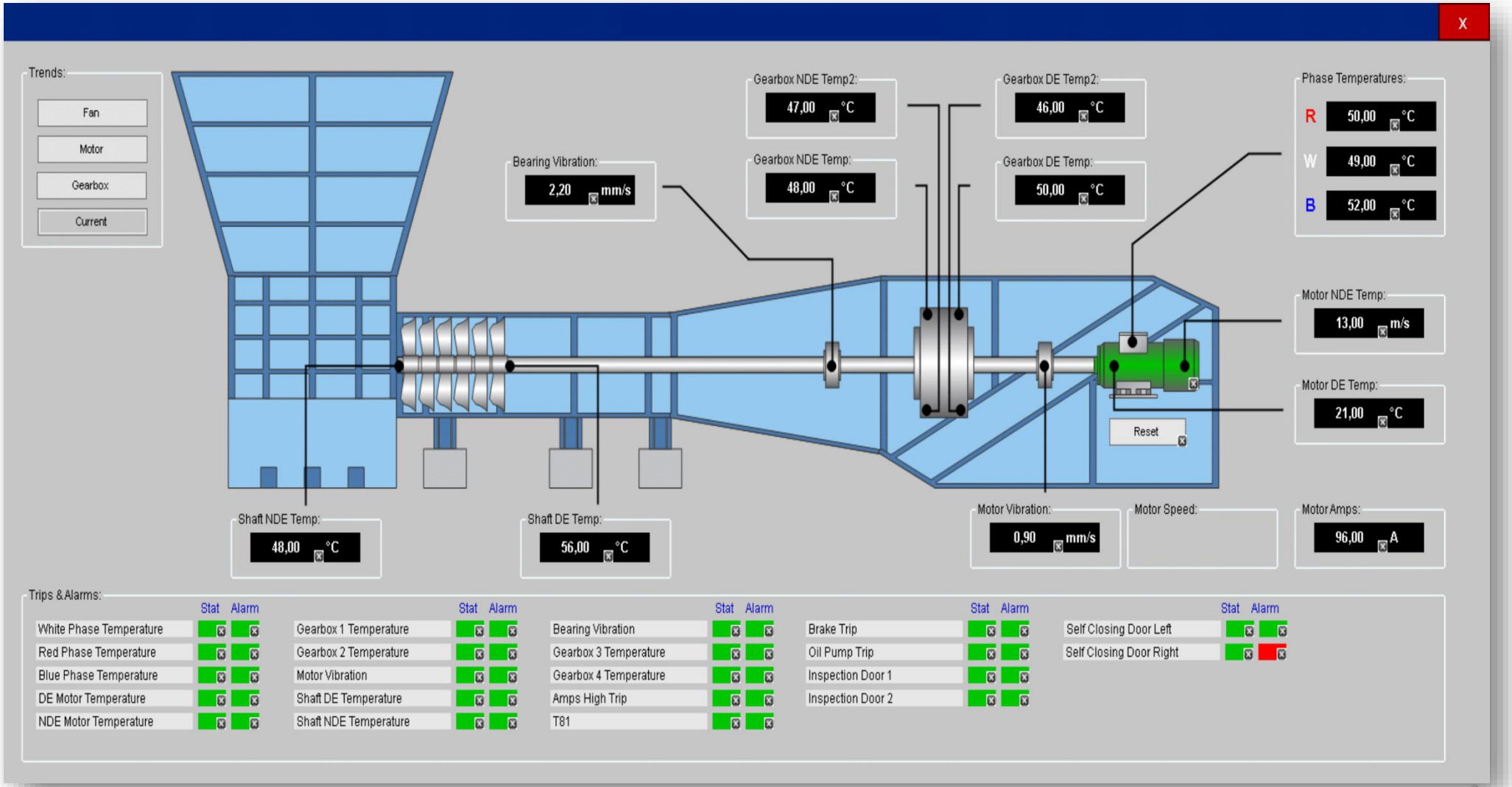
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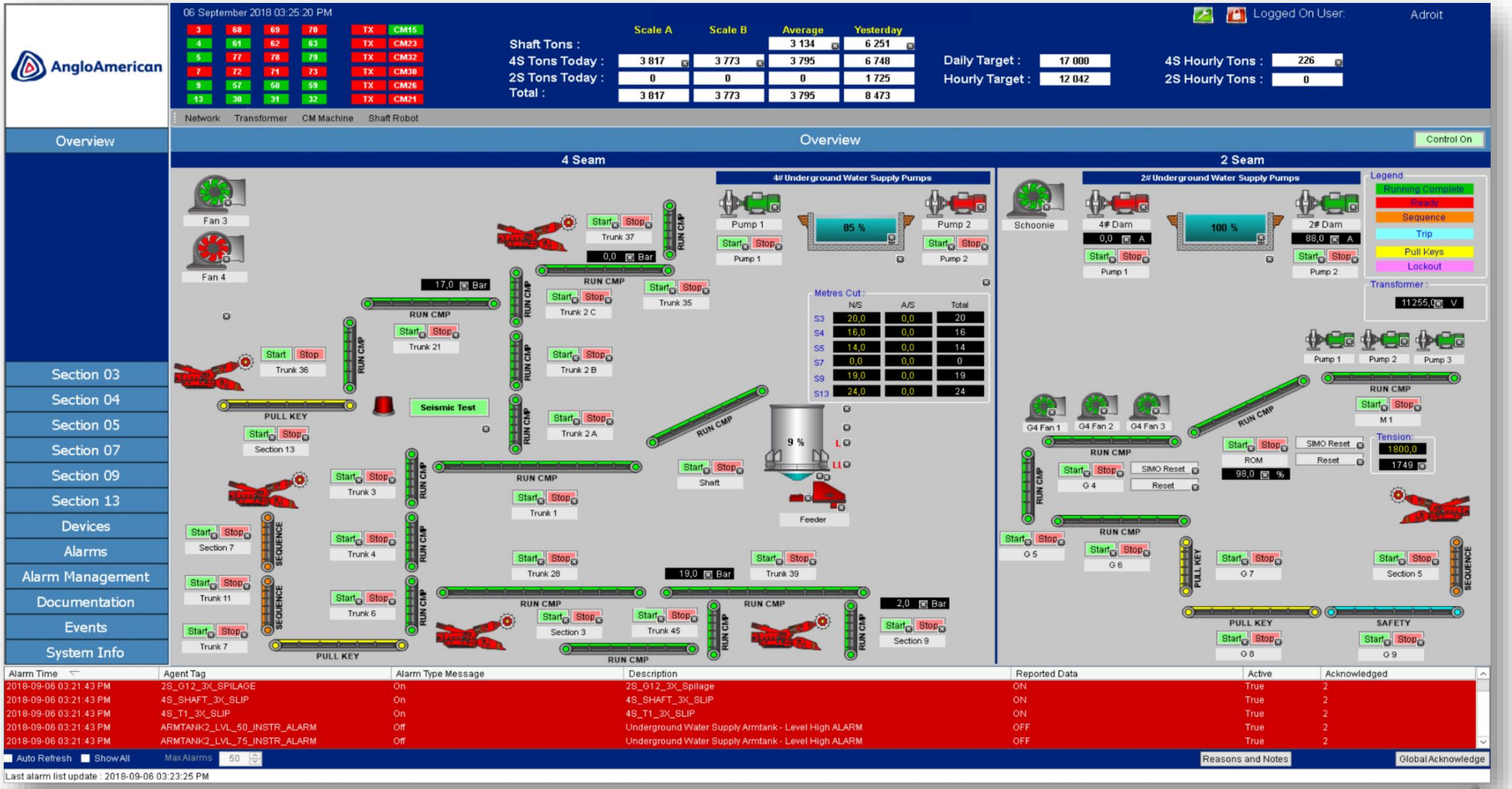
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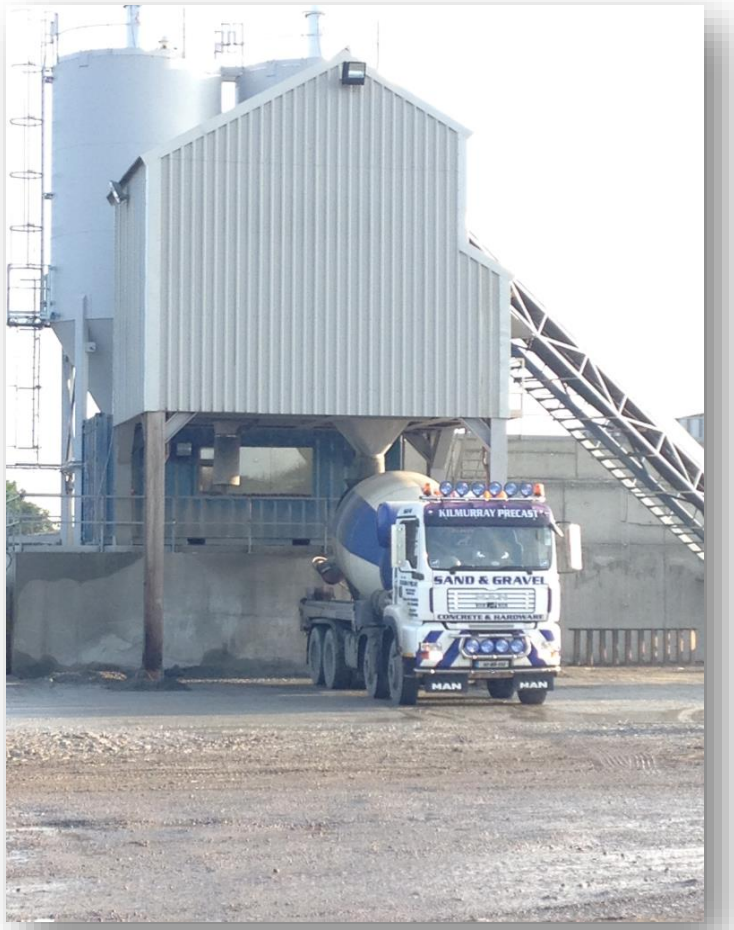
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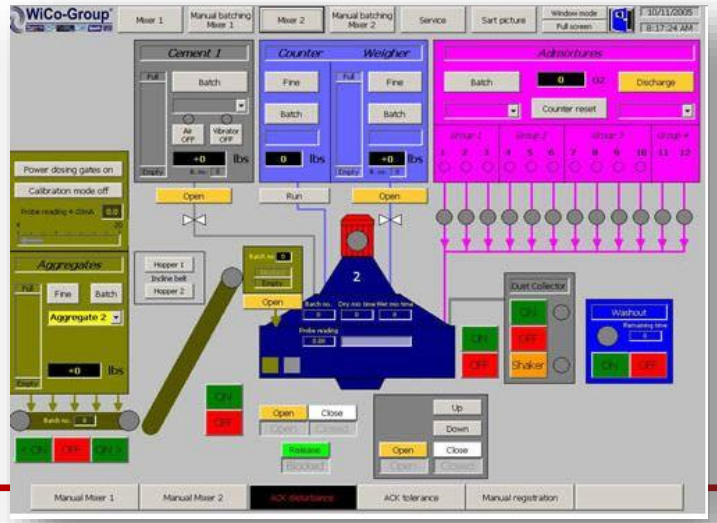
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Batching Plant for Concrete, Ireland

Automated batching control design features

- Increase plant productivity and efficiency
- Automate the process of batching
- Increase throughput
- Eliminate human error from the process
- Reduce operator fatigue by eliminating mundane work
- Get complete traceability on your production
- Quantify and manage stocks and material usage





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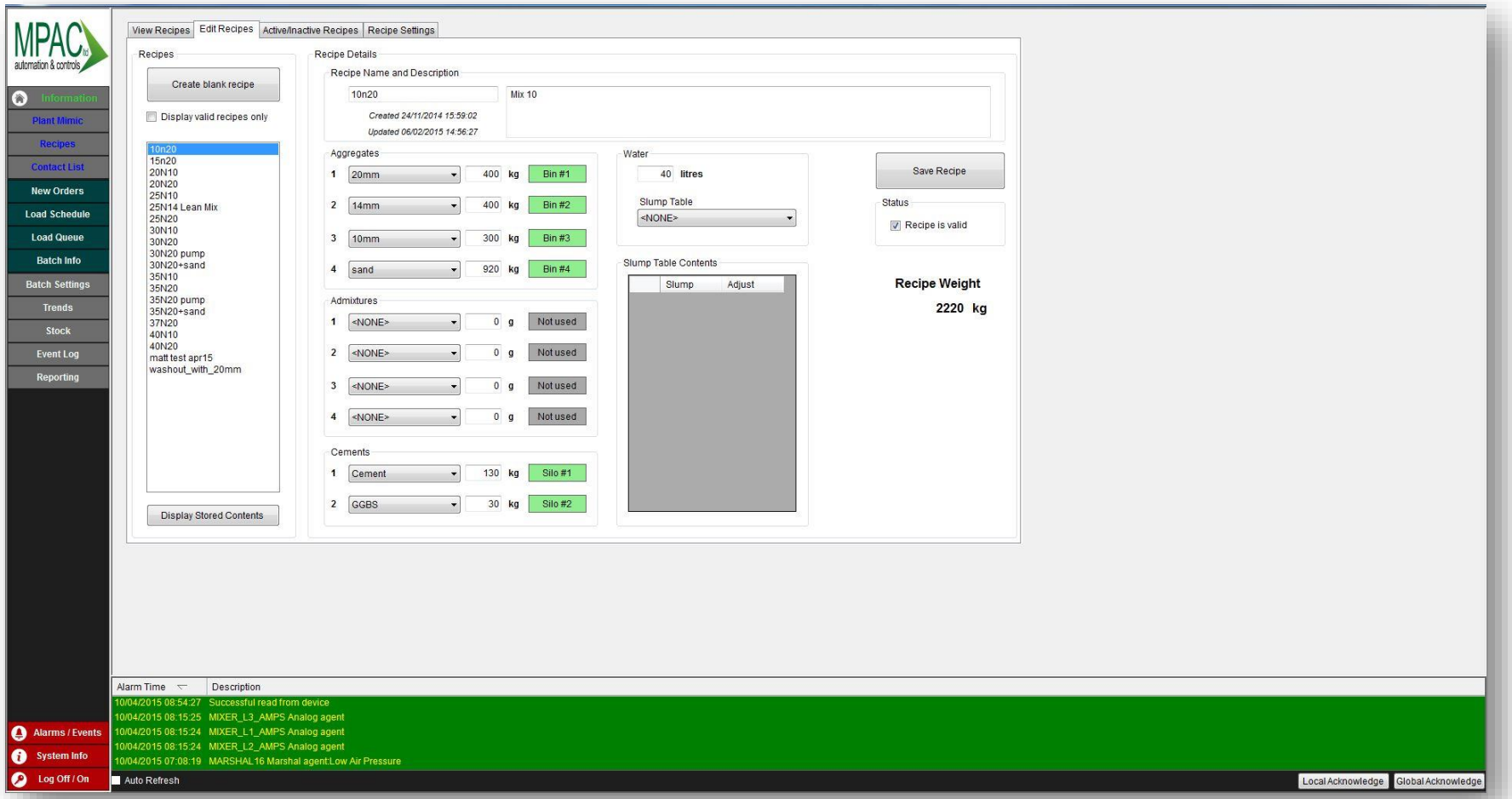
Batching Plant for Concrete, Ireland



MAPS - Main Screen

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Batching Plant for Concrete, Ireland

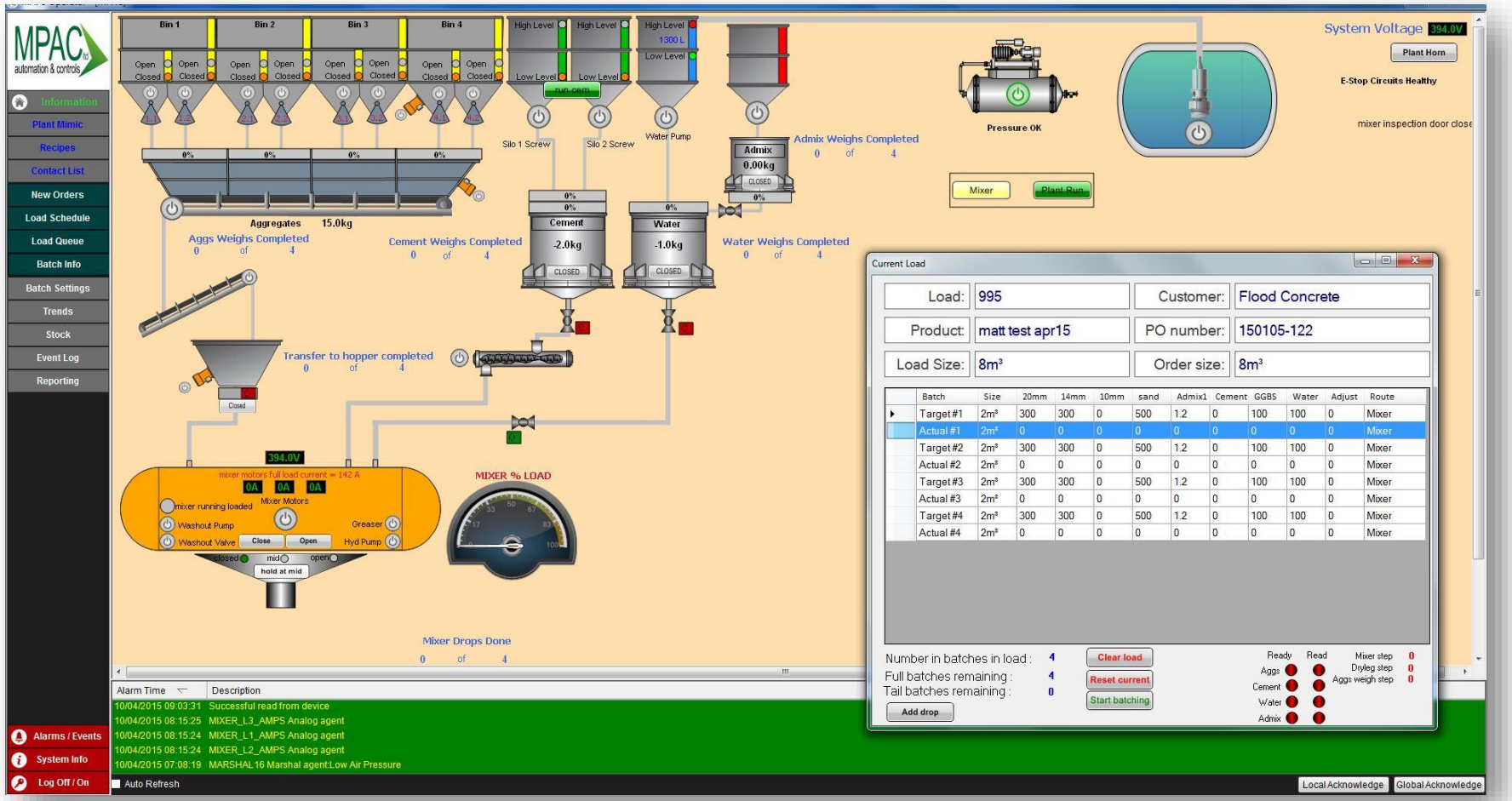


MAPS - View and Edit Recipes, create orders

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Batching Plant for Concrete, Ireland

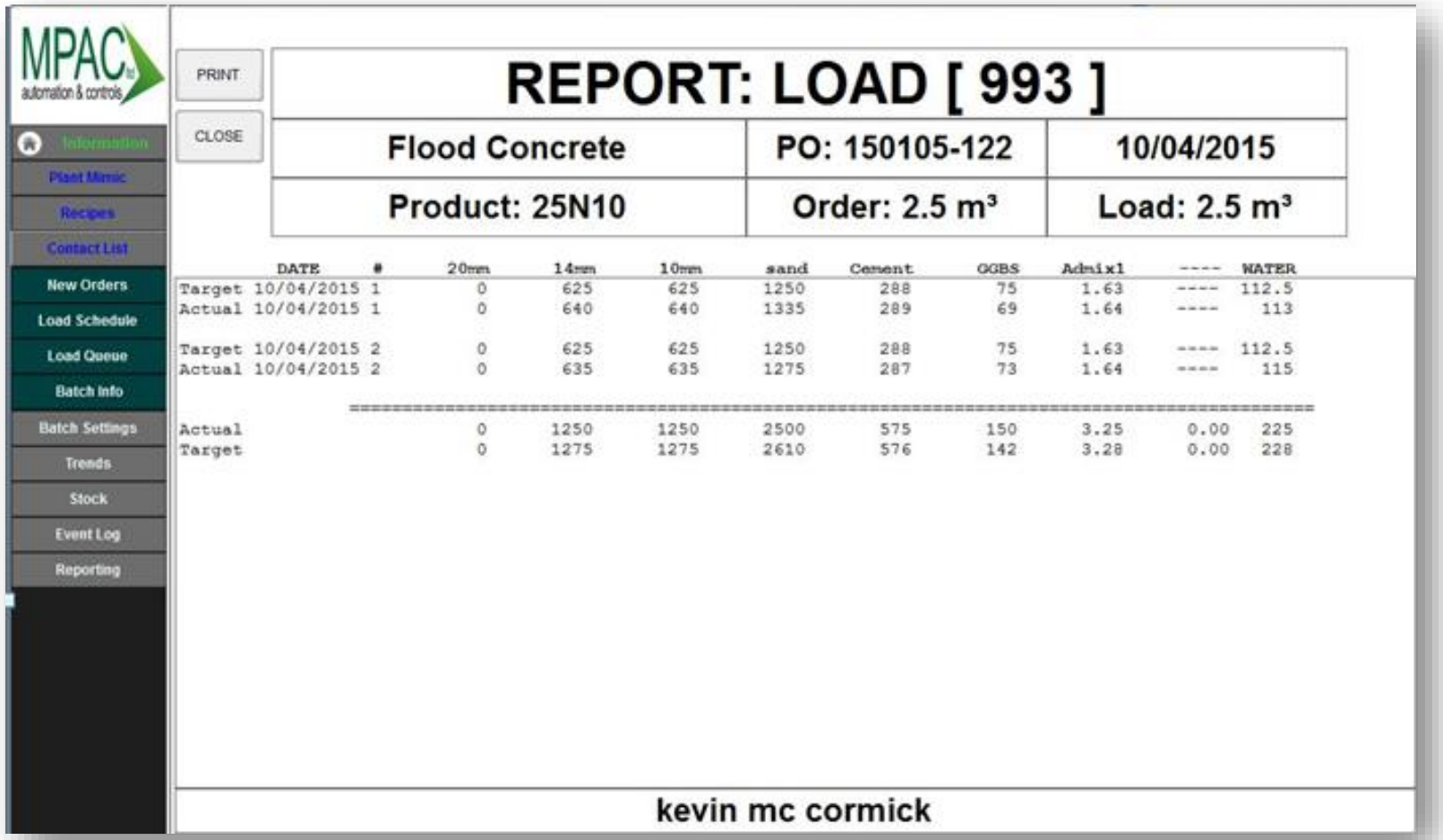


MAPS - Make a load based on existing order

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Batching Plant for Concrete, Ireland



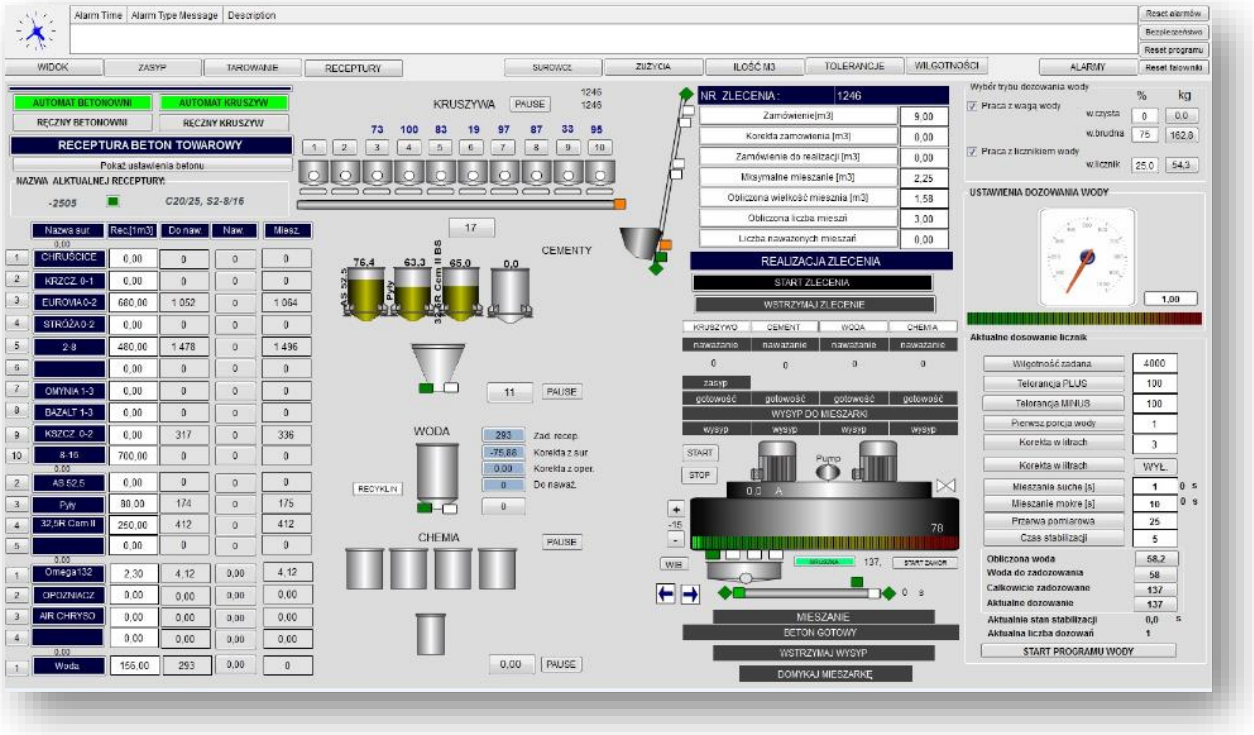
MAPS – Create reports for order and materials usage

Adroit Technologies

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Batching Plant for Cement & Concrete, Poland

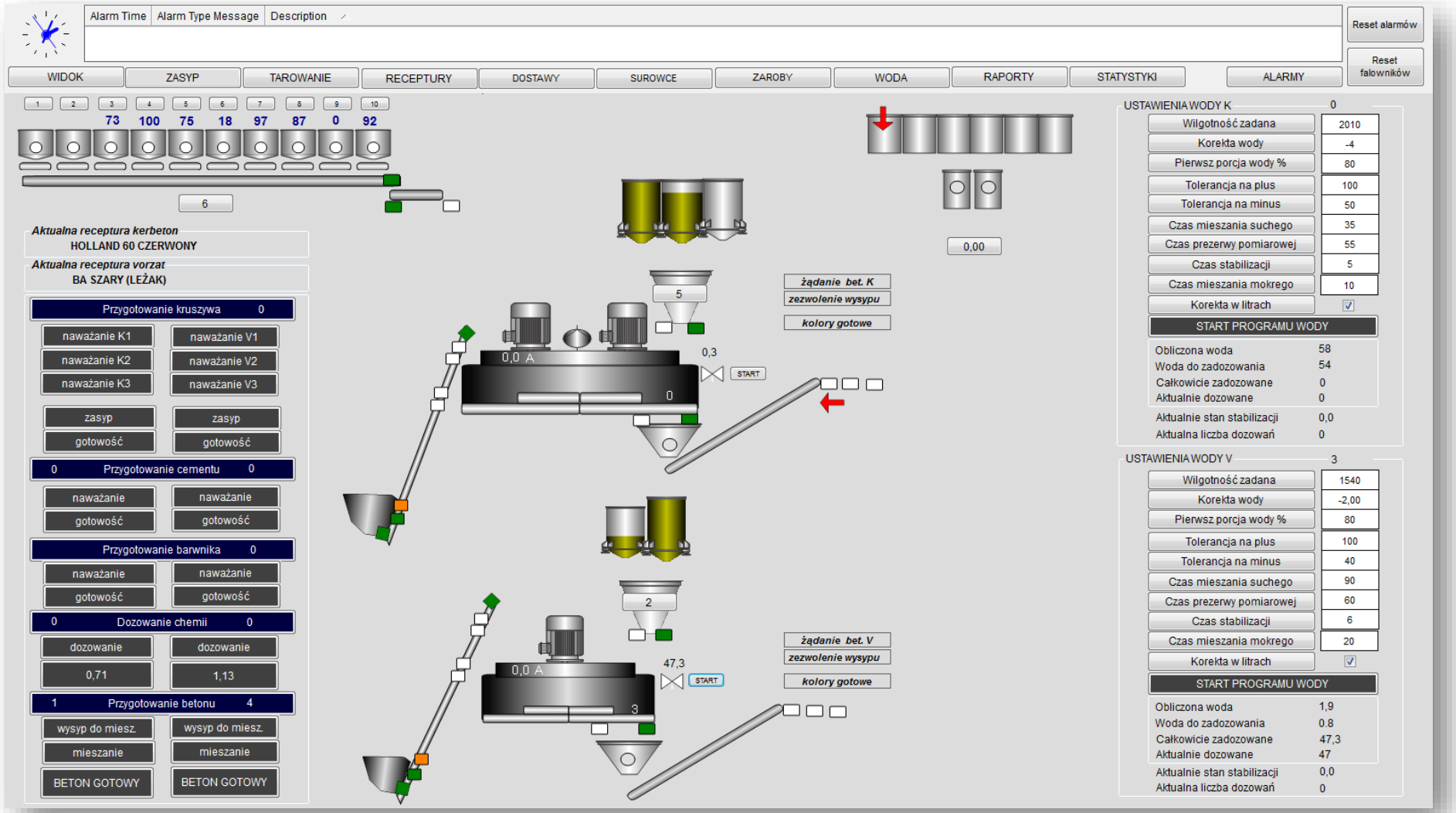
- Cement and concrete production plant of company Techmatik, City of Lubin
  - 3x MAPS SCADA 1500 scan points
  - 2x L-series PLC
  - 2x Q-series PLC
- Recipe module based on SQL Server DB and Microsoft Reporting Suite – included in the MAPS Product!



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Batching Plant for Cement & Concrete, Poland

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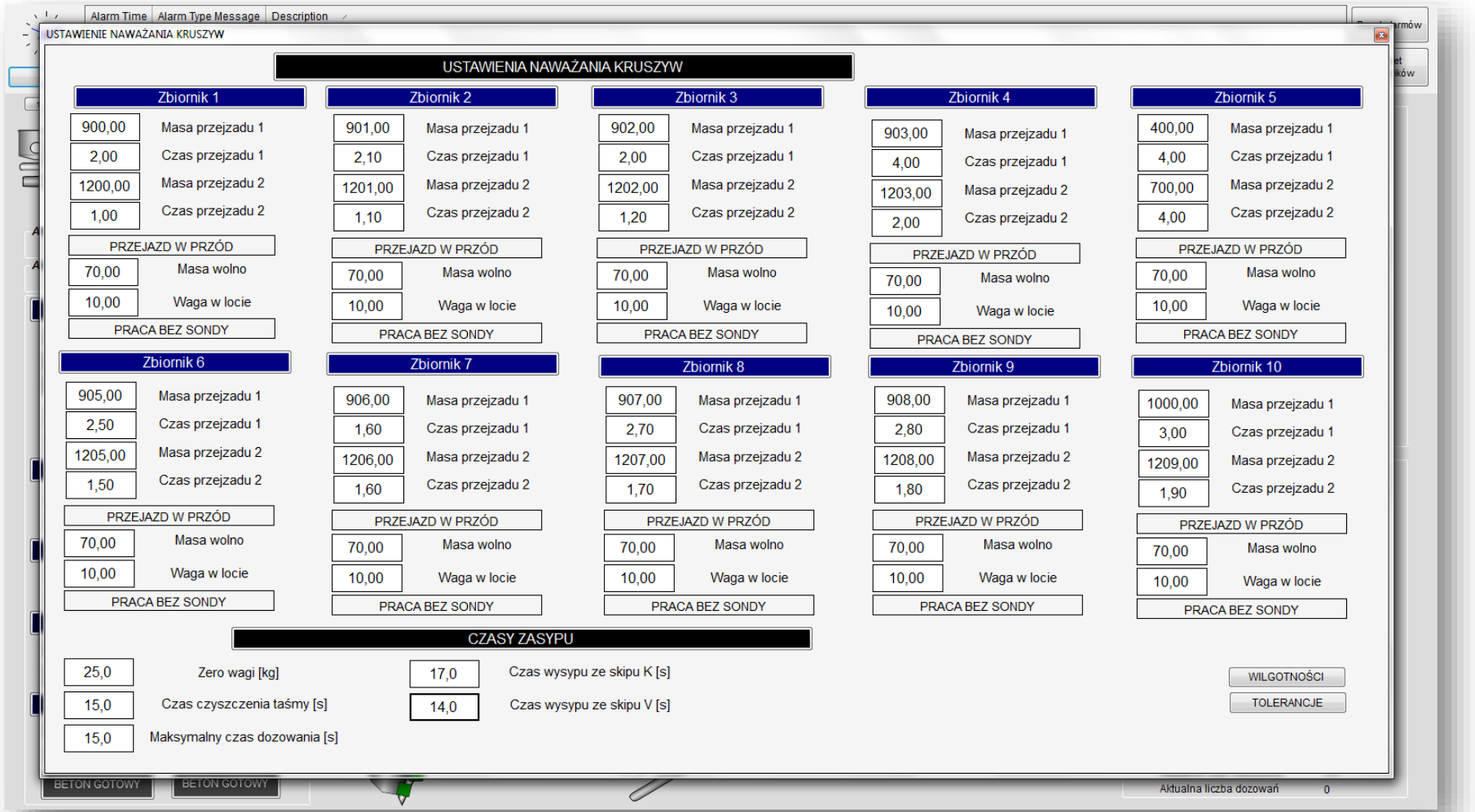
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