MAKHTESHIM AGAN HYDROGEN PEROXIDE PLANT

Hydrogen peroxide production for industrial use, powered by Pulse SCADA/HMI

Background

Hydrogen peroxide, a weak acidic colorless liquid, was discovered by Thenard in 1818 and has been used industrially since the mid-19th century.

The primary use of hydrogen peroxide is in the manufacturing of "green" bleaching agents such as perborates and percarbonates for the paper and textile industries. Other significant uses include wastewater treatment and hydrometallurgical processes (for example, the extraction of uranium by oxidation).

Hydrogen peroxide production comprises of complex industrial processes and must go through a rigorous control process to ensure that everything adheres to regulations in terms of safety and stability.

Makhteshim Agan Group (http://www.ma-industries.com/) develops, manufactures, and markets products for crop protection in agriculture, industry, specialty chemicals, and materials for agricultural uses, which include pesticides, pharmaceutical intermediates, hydrogen peroxide, and other electrolysis products.

Companies such as Makhteshim Agan Group, take pride in manufacturing facilities and research laboratories that are at the forefront of global technology. By choosing partners such as AFCON, Makhteshim Agan Group takes advantage of advanced and technological SCADA/HMI software to produce hydrogen peroxide in a safe environment, while relying on dependable SCADA software to provide accurate real-time data on the production processes.

Makhteshim Agan needs powerful SCADA software in order to offer reliable and accurate process validation.

The tools available in Pulse SCADA make it easy to develop applications for the hydrogen peroxide facility. AFCON provides a powerful development environment with tools required to develop secured and reliable application efficiency.
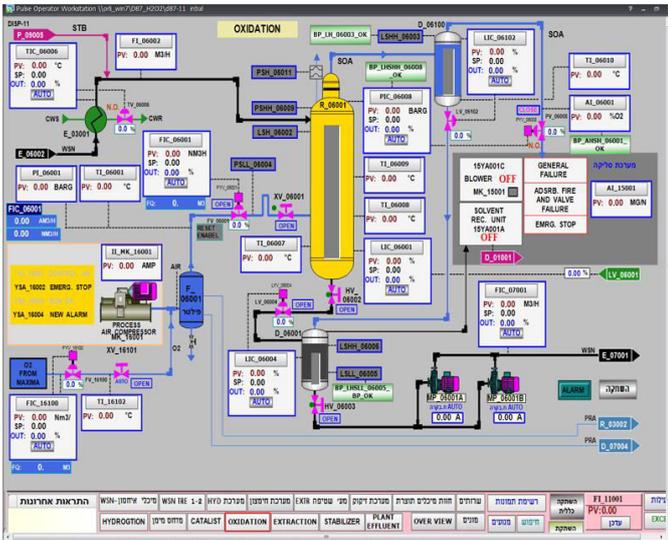
The System

"Pulse is the eyes and ears of the factory"

Makhteshim Agan requested a reliable system they could depend on, since the system is used as their "eyes and ears" around the factory. The operators must know the status of many different components and devices of the large complex system. All parameters must be displayed in a clear manner, and alarms must be presented in an intuitive way so as to allow the operators to respond efficiently in real time and discover immediately the source of the problem and its location in the factory.

Pulse performs functions such as:

- Supervision of the oxidation process, extraction system, HYD system and more
- Notification of alarms on abnormal behaviors such as high level or high pressure occurrences
- Recording of historical data for analyzing in case of fault. The data is stored and available for the operators all the time.

Developing the application efficiently

Since Makhteshim Agan developed the application on their own, they needed an object-oriented tool to allow them to reduce maintenance time when changes are required. For this reason they adopted the concept of Pulse "cells", which allow them to customize a main library with their unique symbols representing the equipment of the process. Using the cells reduced application maintenance significantly since future modifications can be made in the main library and will affect the entire application.

Using the Pulse Display Resource feature is helpful and allows Makhteshim Agan to reuse an existing display multiple times with different values without having to recreate similar displays. As a result, display resources reduce the number of displays in the project, help save time during project development, and make it easier and more efficient to maintain the project.

Minimal Maintenance efforts

Deploy and Update Pulse Smart Client Projects using a Central Server

Using a Server/Client architecture based on Microsoft ClickOnce technology enables Makhteshim Agan to keep and maintain the application in the server only, and receive application updates when they access the server from any client station. When a new version of Pulse is deployed in the server, it is automatically detected by connected clients, and the update can be downloaded and applied to the clients.

This significantly saves time since the application engineers do not need to go through each station following each update. Furthermore, Pulse allows Makhteshim Agan developers to perform updates and development changes from all workstations.

ALARM MANAGEMENT

Using the Pulse alarm system enables Makhteshim Agan operators to view the latest alarms on the screen in a list view. Pulse also enables easy navigation from the alarm list to the relevant unit, and displays the alarm's location so that the operator can respond with efficacy to the alarm.

HISTORICAL DATA

Another feature that developers of Makhteshim Agan found useful is the Dynamic Trend feature. The operators needed to have the ability to view historical and real time data of all I/O. Since this function is required on a daily basis, Makhteshim Agan used the Pulse Dynamic Trend feature with the ability to choose the parameters in the graphical screen on-the-fly and select the required trend period e.g. hours, day, week, month, and year. This method is time saving since it provided the operators with the ability to create their own trend displays, without the need to contact the SCADA engineers for modifications as is the case in previously predefined display methods.

The system that Makhteshim Agan developed uses Pulse SCADA/HMI to connect to Allen-Bradley ControlLogix PLCs through OPC connectivity and to connect to Siemens S7 300 and S7 400 PLCs using AFCON's native driver that is included with the standard Pulse package.

Currently, Makhteshim Agan has a vision for the future. Because Pulse makes it easy to plan with integration and new technology, there is always room for improvement to the current HMI offering as new equipment becomes available.