

Success Story: Toggenburger AG

Markets Served
Soil Washing

Toggenburger



"We are very pleased with the entire solution. Commissioning was completed without any problems and communication between all operating devices functioned directly at the start. The cause of any malfunctions that develop can be identified quickly thanks to the clear and uniform visualization. We can call up all process data, the batch number or the individual operating hours from any location."

Eaton Solution Increases Output and Reliability of Toggenburger AG's New Soil Washing Plant

Location:

Tollenmatt, Switzerland

Problem:

Need for a more powerful, high output soil washing facility

Solution:

Eaton XC2 modular PLCs, XV HMI-PLCs, XI/ON remote I/O, and ES4P easySafety control relay

Results:

Washing capacity of 120,000 tons per year; increased functional reliability

Contact Information

Readers who may have similar application challenges and would like to discuss this sales success are invited to call Richard Chung at 414-449-6187.

When Toggenburger AG decided to replace its existing soil washing plant with a more powerful facility, it worked with Avesco AG and Eaton to create a solution that protects the environment, carefully processes gravel resources and optimizes landfill volume.

With the plant's annual washing capacity of up to 120,000 tons of extracted material, a wide range of contaminated materials can be converted into reusable sand and gravel fractions.

The new washing plant can process extracted material, soil, backstop material, moraine gravel, pebbles and dry or wet broken concrete and rubble, whether in granular or broken form, with light or heavy contamination. The extracted material deposited on a star screen is transported to the turbo washer by means of a conveyor belt. The gravel fractions are cleaned and classified over different screens in a density separation process. The sand is also cleaned in an attrition process and sorted by density using spiral separators. Four employees operate the plant, which has an annual running time of 2000 hours.

The plant—with a continuous material feed—is designed for material with a particle diameter range of 2, 4, 8,

16, 32 and larger than 32 millimeters. It has an output of 40 to 50 tons per hour. The sludge water treatment system is designed for a maximum capacity of 200 cubic meters. The electrical connection load of all plant components is 700 kW. The rainwater roof area is around 720 square meters—with a simple option for doubling it.

Since the specified plant washing capacity was 120,000 tons a year of excavated soil reconditions a wide range of contaminated materials into reusable sand and gravel fractions, it required a standardized process monitoring system that would also ensure increased functional reliability.

A graphical visualization of all relevant process data and error messages was also required,



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as well as a simple operation throughout the facility using touch panel displays.

The Eaton automation solution met all the requirements in full, also significantly increasing the output of the plant. Today operation and visualization are implemented at all stations in the same way—both in the plant and in the office. All diagnostics data is provided immediately. The Eaton solution includes three XC201 modular PLCs, two XV HMI-PLCs, five XI/ON Modbus TCP gateways and an ES4P easySafety control relay. The Eaton products process 350 inputs and 169 outputs (35 analog). The entire communication between all controllers is implemented with Ethernet (Modbus TCP). Remote maintenance and diagnostics functions

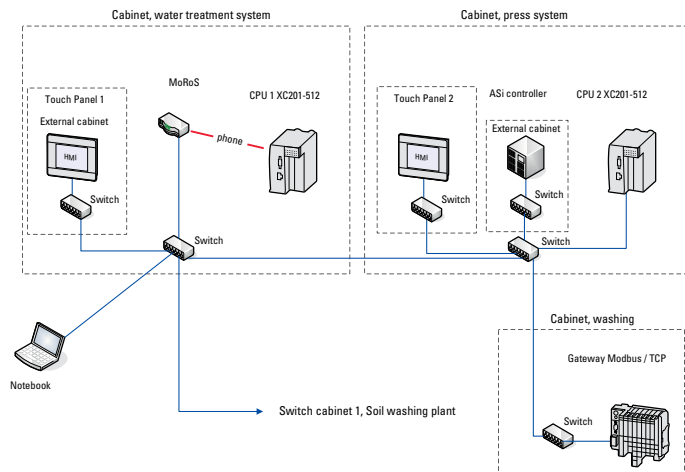
are also integrated and are implemented via the web interface of the XC201-XV.

Daniel Stutz, deputy plant manager at Toggenburger AG, reports, “We are very pleased with the entire solution. Commissioning was completed without any problems and communication between all operating devices functioned directly at the start.

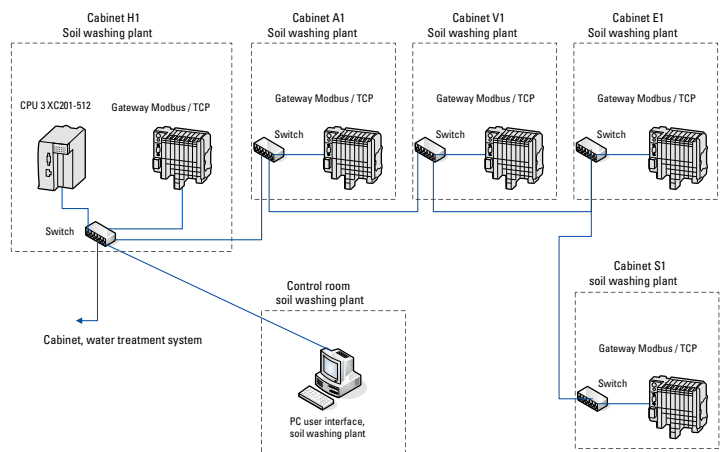
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Overview 1 Ethernet PLC Configuration of the Toggenburger Plant



Overview 2 Ethernet PLC Configuration of the Toggenburger Plant



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