



A Rockwell Automation Company

City Of Edmonton Goldbar Wastewater Treatment Plant Automation

The Client:

Edmonton's Goldbar treatment plant is one of the most efficient sewage treatment plants in Canada. Sewage is treated using only the natural properties of the waste water itself; no chemicals are used. Through a series of processes, the pollutant load of the waste water is reduced until an effluent is produced that can be discharged into the river.

These processes consist of primary treatment (with its screening, collecting and settling process) followed by a secondary treatment where air is injected to promote the growth of microorganisms that feed on the sewage to break it down.

The Requirement:

The Goldbar Plant needed to remove odors and harmful gases from its existing filtering ponds. A local engineering company designed two wet scrubber units

and asked HinZ to do the control and automation aspects of the project.

The Design Solution:

Hinz provided the electrical design, wiring diagrams, rack layout and the modifications necessary to the existing PLC 5 program (resident inside the plant's primary PLC) to accommodate the 2 new PLC 5 Remote I/O drops and the associated field I/O devices. The program included 2 PID loops that constantly monitored the pH and ORP levels flowing through the system. Various alarms, annunciators, different discrete detection devices (such as low/high level, pressure, temperature, H₂S level, etc) were included in the added program. As well, Hinz added a few FIX HMI screens to the existing system, which displayed information about each scrubber unit.

These scrubbers and their corresponding control rooms were named East and West based on their physical location in the yard. The main body of the wet scrubber system used in this project consisted of a two-story high vessel. The system would partially fill the bottom of the vessel with water, caustic (NaOH) and Hypochlorite (NaOCl) solutions. This solution would always be kept at some predetermined level of pH and

ORP using two PID loops inside the program. The PID loops would start the chemical pumps (using variable speed DC drives) when the PM or ORP differed from the set point. The system would then slow or stop the chemical pumps when the levels were at the desired settings.

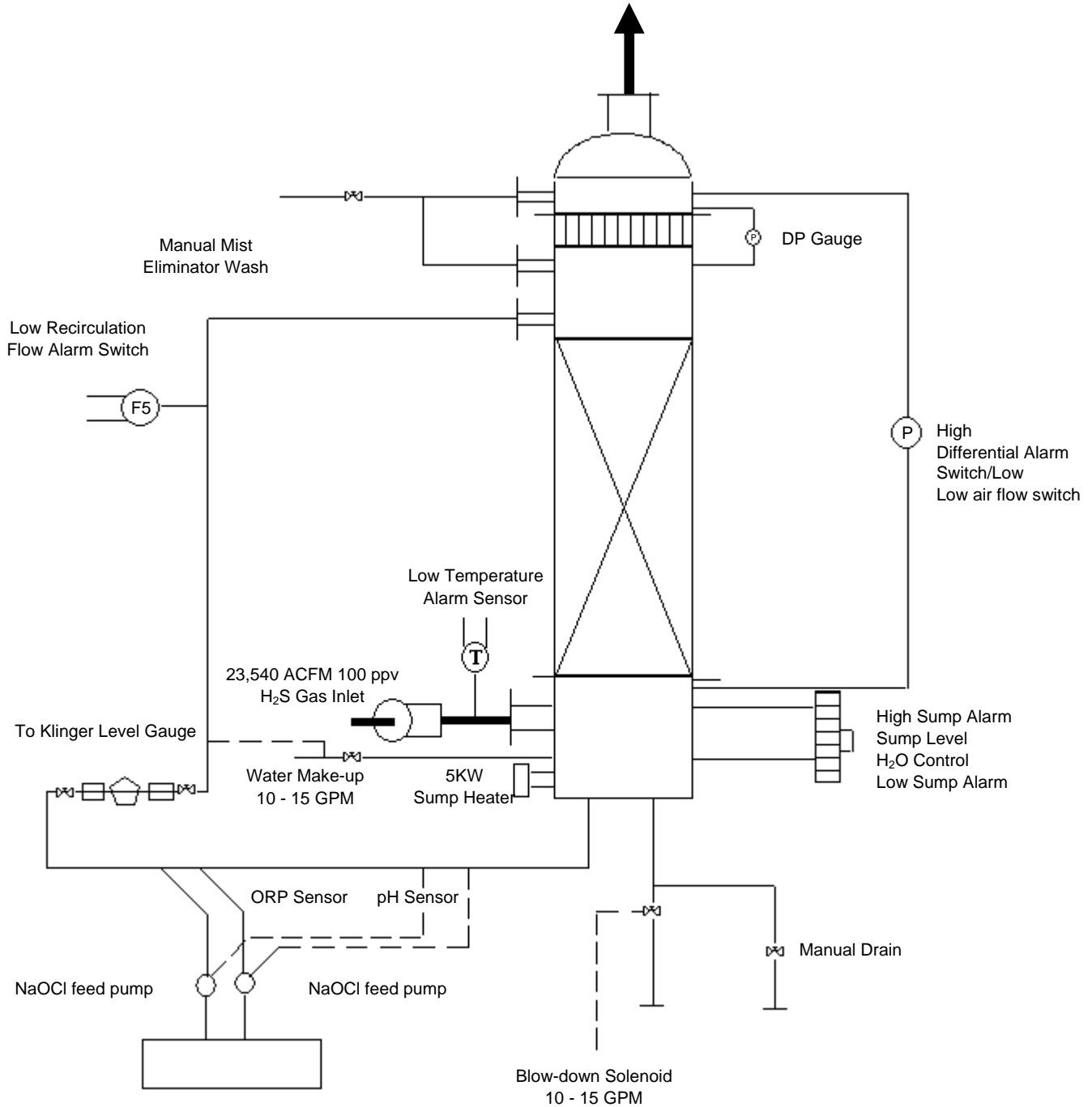
Midway within the vessel, there are layers of packing which performed the 'scrubbing' action with the odor molecules and particles. The contaminated air was forced into the vessel via a 23540 ACFM fan. At the same time, the chemical mixture circulating from the bottom to the top of the vessel poured down through the packing material, colliding with the contaminated air. Odor molecules would be trapped inside the vessel and clean air would exit the system through an opening on top of the vessel.



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33" DIA gas Outlet approx. 3960 FPM O.V.



For further information or to contact a Hinz office near you, please check our website at:

www.hinz.com