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Smart Underground Water Consumption Monitoring

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ABSTRACT

Virtual flow measurement is a soft sensing that provides feasible and economical alternatives to costly physical flow measurement instrument. It uses information available from other measurements and process parameters to calculate the flow.

Current practice in calculating flow is to install differential pressure transmitter with orifice plate. By doing so, piping modification is required as well as shutting down facility fire water system, that will lead to lost production.

The soft measurement logic is developed in the Distributed Control System (DCS) which is capable to manipulate process data and calculate the volume of water pumped from water supply well. The logic capitalizes on liquid volumetric change as well as discharge flow rate of water tank and pump characteristics.

This is to log the water consumption in the plant in order optimize and preserve the environmental resources. This water is utilized for the utilities, oil processing and fire water system inside the Gas Oil Separation Plant (GOSP).

Keywords: Flow, Logic, Sensing, Transmitter, Virtual