

# Continuous Level Measurement Of Black Liquor & Soap

## An Application Profile Of Continuous Level Radiometric Measurement Systems From Able Instruments & Controls

### Application

The EPA mandates that mills have effective Best Management Practices (BMPs) with the principal objective to prevent losses and spills of spent liquor and other by-products such as turpentine and soap (EPA 821-R-97-011). One key element of the required engineering review in the BMP is that *"Continuous, automatic monitoring systems are needed to detect and control leaks and spills of spent liquor, soap and turpentine."*

### Problem

Continuous Level Measurement of black liquor and soap offers some unique challenges. It is highly alkaline and the soap tends to separate out from the liquor, forming a foamy layer on top; this layer can vary from a few inches to several feet. Technologies such as DP, Ultrasonic, Radar and Capacitance have all had inconsistent results due to either the foam interface or the dirty and sticky nature of the process itself. Inconsistent level measurement can result in soap overflow which is a reportable environmental incident.

### Solution

Because the radiometric continuous level gauge is non-contact, it is immune to the coating and offsets seen from the make-up of the process. Measurement is achieved through the emission of low-level gamma

photons which are transmitted through the tank and detected by scintillation detectors. The amount of photons detected is inversely related to the masses of the black liquor and soap. The instrument software has the ability to detect and accurately measure the liquor/foam interface and to also measure the level of the foam.

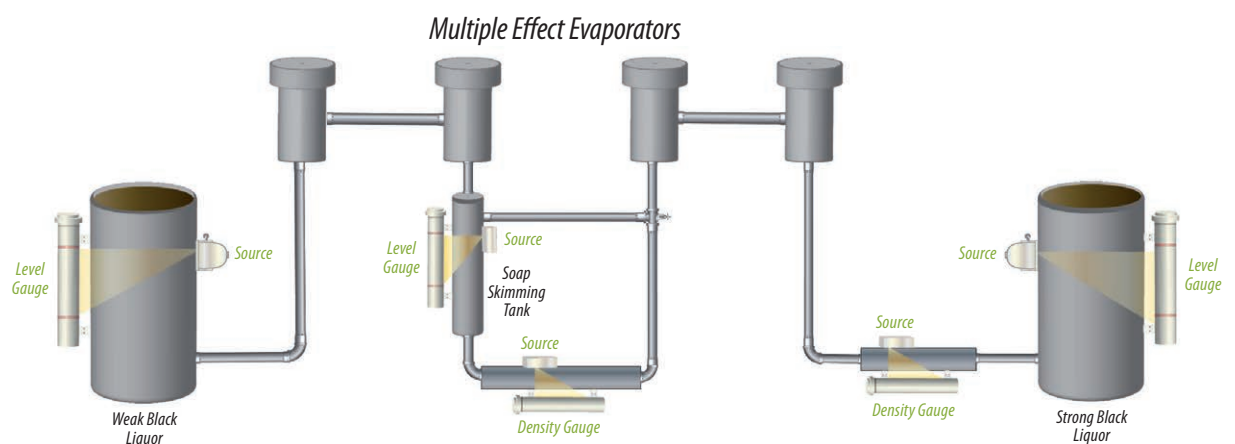
### Summary

The radiometric continuous level system is an easily installed, accurate system with very low maintenance requirements which does not involve the expense of exotic materials like Hastelloy®. With this system, the user can be assured of meeting the monitoring requirements in their BMP.

### About ABLE

Able Instruments & Controls are an independent instrumentation company with more than 25 years experience providing application solutions utilising radiometric devices to measure complex processes in harsh installation environments.

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