

APPLICATIONS BULLETIN

(Revised 1/20/06)

ABIL.4

BLANKET INTERFACE MONITORING IN POTABLE WATER AND RAW WATER THICKENERS/CLARIFIERS

Potable water plants and raw water feeds into power plants, which use river water as their source, often employ clarifiers or thickeners as settling tanks during their first stage of clarification. These tanks are much like wastewater treatment clarifiers. They are often deeper, with more conical bottoms and usually have less mechanical equipment inside the tank. The older versions may be square or oblong in shape with nothing but fill and drain valves for mechanical equipment.

The primary purpose of these clarifiers is the settling of particulate matter, which has been drawn in with the river water. Flocculents are often used to assist in the settling process. These settling agents are costly and are usually fed into the water using metering pumps for conservation and achievement of accurate dosing.

The sludge blankets of potable and raw water clarifiers can most often be described as having one of two consistencies. One is a heavy, packed blanket that becomes quite hard on the bottom of the tank. This latter type can become a problem if the plant is using too much flocculent in an attempt to settle the blanket further. This over flocculation will cause the light blanket to "ball-up" into a cloud like body, which will float around the tank, losing its ability to settle to the bottom in a single layer.

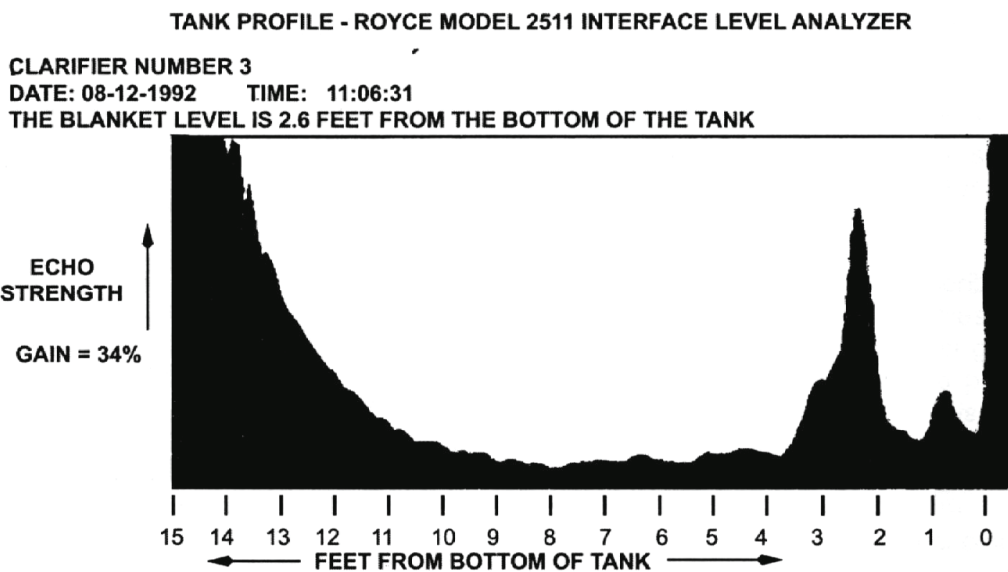
The use of a Royce Interface Level Monitor/Controller is an excellent logical choice for monitoring the sludge buildup in these clarifiers. The instrument installs very simply, usually on the catwalk or on a side rail. It will monitor and control the sludge blanket very reliably. One added capability of the Royce system is the ability to track the lighter, suspended layers in the tank and control the flocculent metering pumps. This will save the user in flocculent costs and guarantee the control of suspended solids in the tank, eliminating the potential of the over-flocculated "cloud" type of blanket.

Due to the use of flocculents, the sludge drawn from these clarifiers is considered "chemical sludge". So, as a cost saving measure, it is important that the sludge is as dry as possible prior to the disposal. Again, the Royce Interface Level Monitor/Controller can be of assistance by automatically allowing the rise of the actual sludge blanket to a level where dryer sludge can be drawn through the draw-down pumps of the clarifier.

Manual methods of measuring potable and raw water clarifier sludge blankets are not simple. The common clear "dip tubes" used in these measurements are very long and cumbersome, often long

enough to measure the blanket in a 40' deep clarifier. These tubes are so long that they must be assembled prior to each use and then dismantled and cleaned following use. Also, the lighter fluff layers in the tank are usually white or "clear-like" in color, so these are often very hard to distinguish by the naked eye. Labor savings alone will usually pay for the Royce system in less than a year. Add this to the savings in flocculent and sludge disposal and the product is almost too valuable not to have.

Finally, the Royce Interface Level Monitor is delivered standard with outputs that can supply management with important information on every clarifier being monitored. If the analog output is used, a continuous input of the blanket level, of all the clarifiers under the command of a Royce instrument, can be monitored; and this would require a separate cable to the computer for each remote instrument. But, if the standard digital RS-485 output is used to "daisy-chain" all of the Royce instruments on one cable, a computer can maintain a continuous visual record of the complete internal profile of all the plant's clarifiers; visually identifying each and all interfaces in each clarifier, see Figure (1).



For further information on the Royce Interface Level Monitor/Controller on a potable or raw water clarifier, call toll free 1 800 347 3505 or Fax 504 254 8855.



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