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'FROTHTEC'

FROTH DEPTH DETECTOR

Innovative technologies for efficient resource processing solutions

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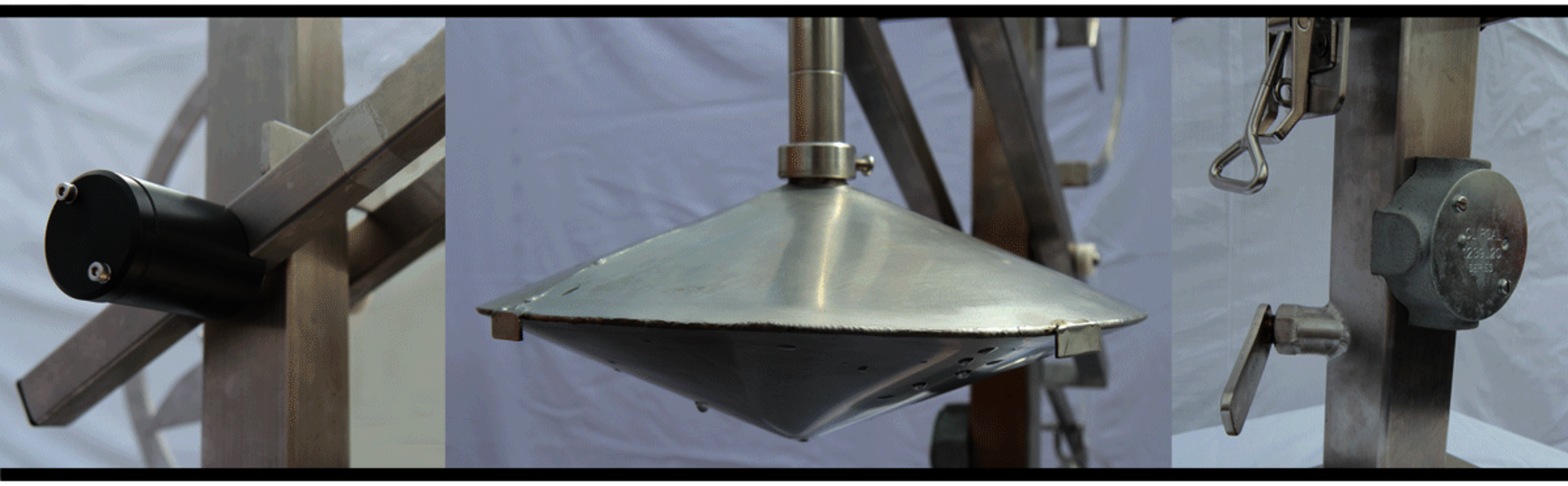
In any flotation process, it is important to have an accurate froth depth measurement. This allows an operator to more accurately control product grade and maintain optimum cell performance.

Clean Process Technologies ‘FrothTec’ does this accurately and reliably.



ROBUST

Due to its counterbalanced design, the FrothTec unit can be made from heavier gauge stainless steel. Units which are not counterbalanced must be made very lightweight to allow it to float.
This is achieved by using light, fragile materials, which leads to unstable operation and premature breakage.With full stainless steel construction and heavy duty float stem with pressure tested float the CleanProTech ‘FrothTec’ can handle the toughest of conditions, whilst delivering more accurate results over a longer period of time.

FLOAT SHAPE

The unique shape of the CleanProTech ‘FrothTec’ float minimises errors in level detection as pulp density conditions change.Regular shaped floats can suffer from large changes in equilibrium point as the pulp density changes. This could be caused simply by a change in pulp aeration.

SIMPLE 4-20 mA COMMUNICATION

The FrothTec utilises measurement devices powered directly from the 4-20 mA current loop.
All that is required is one pair of cables, no external power supply is needed.

VISUAL INDICATOR

As well as using 4-20 mA communications, the FrothTec incorporates a visual indicator displaying froth level. This allows operators to view froth level at the unit whilst inspecting froth conditions.

SEALED MEASUREMENT

A steady state angle measurement device located in a fully sealed enclosure directly measures parameters for calculating froth depth. Units which measure depth directly can suffer from material build up on measuring surfaces and misalignment of sensors, causing erroneous readings.
Electrical wiring is located within the main body and is terminated internally to an ip rated enclosure, leaving no exposed cabling to suffer damage or hinder operation.

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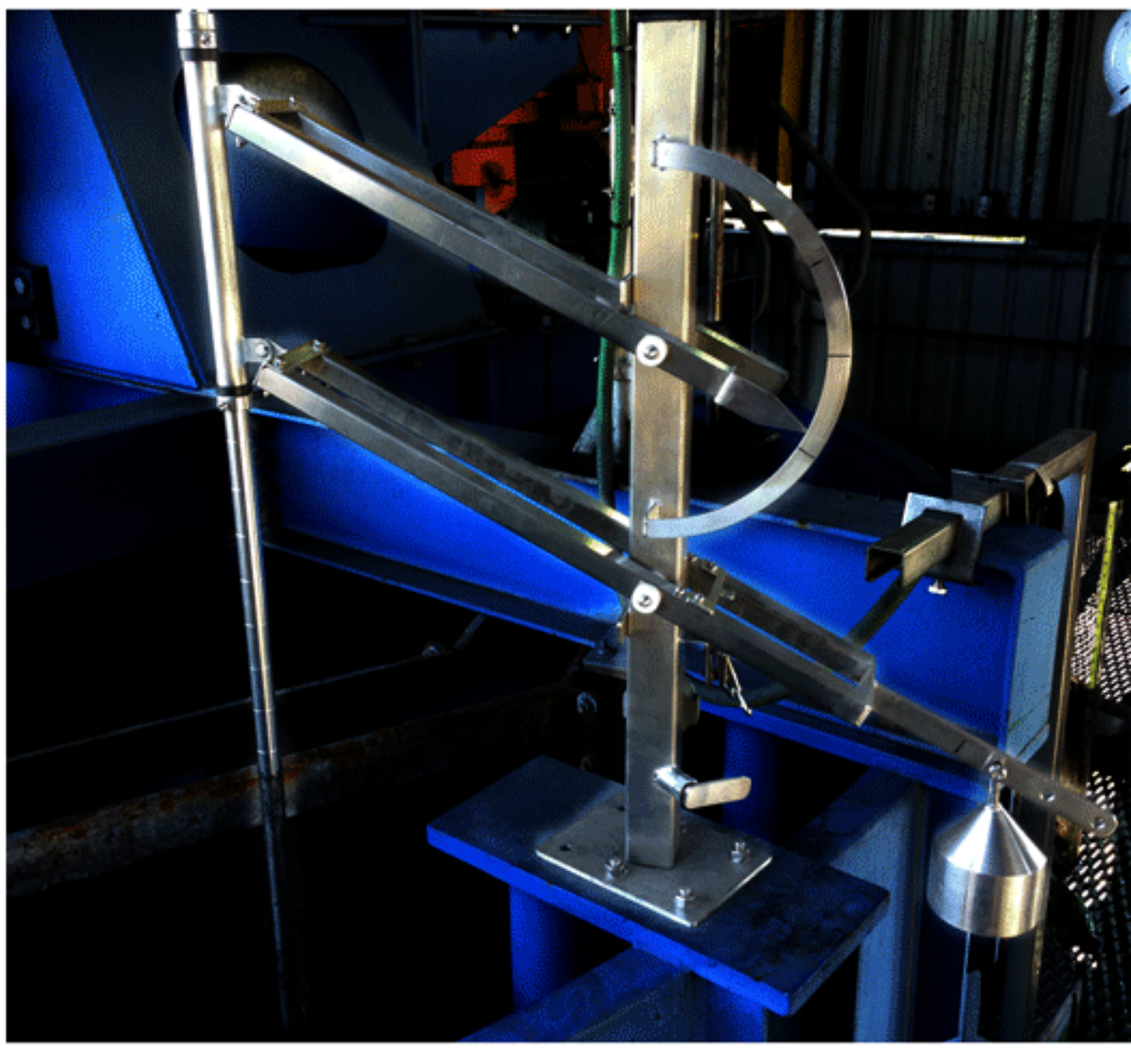
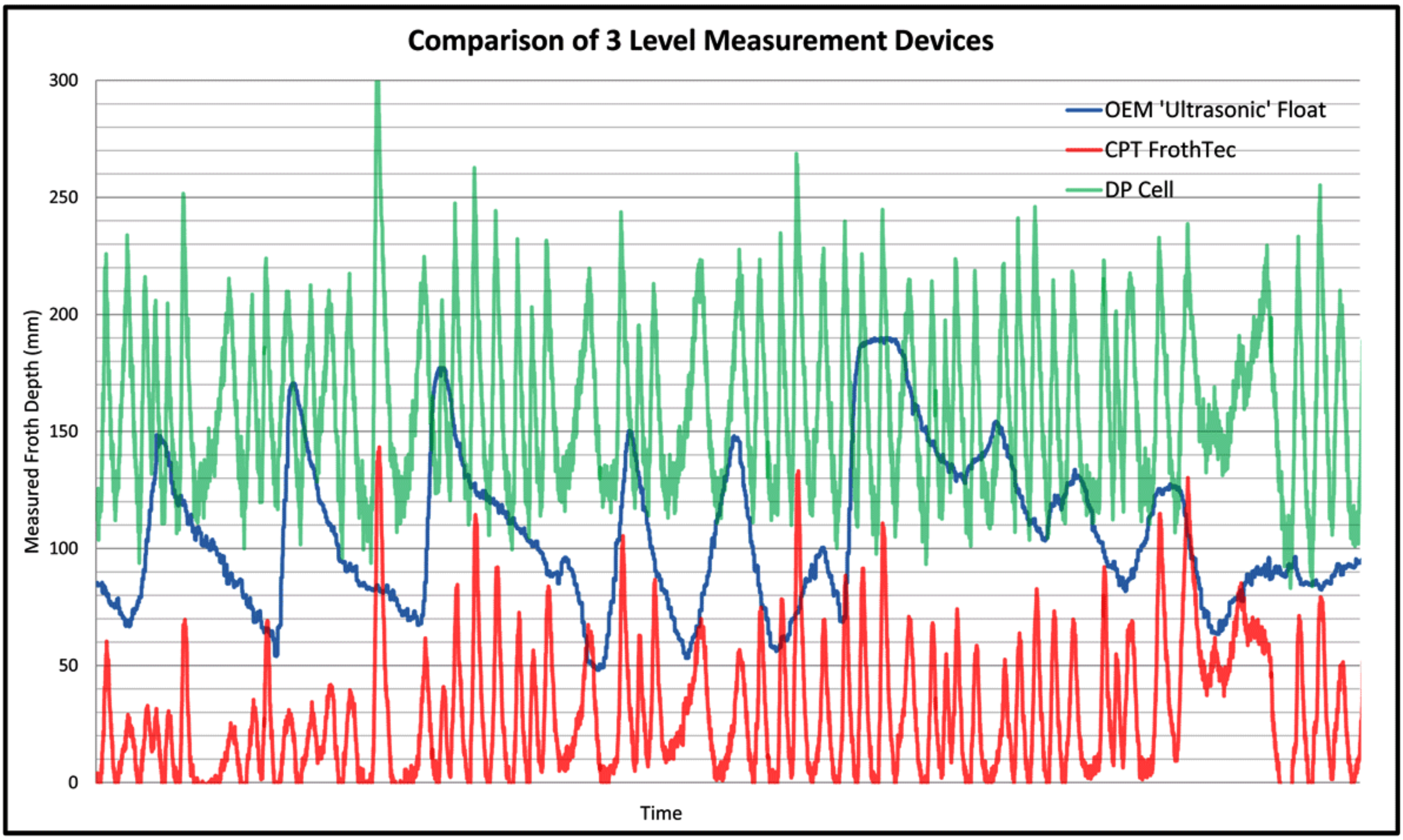
A recent onsite trial showed that existing level detection systems (~12 months old) were not providing accurate froth level measurement, hence poor control of the flotation cells was occurring. Visually, this variation in level may be difficult to recognise depending on froth depth.

As well as reading incorrectly due to their design, the existing floats would not move freely, giving erroneous readings and often becoming stuck in place. A stuck float caused the cell to empty whilst the drive motor and impeller continued to operate. This could lead to premature failure of the flotation mechanisms.





The above graph shows a direct comparison between a conventional float, a differential pressure transmitter and the CleanProTech 'FrothTec' froth level measurement system. These devices were installed in the same position on the same cell which was thought to provide stable operation and constant froth depth. This graph shows readings taken every one second for a two hour period (Note that the data is raw values without smoothing).It can be seen that the cell is not stable and regularly overflowing, which was confirmed with visual observations.Only the FrothTec shows this level dropping to zero, with the conventional float showing only down to 50 mm and the DP Cell only showing down to 90 mm when overflow was occurring. This error is usually caused by changing pulp density and/or incorrrect calibrations, both of which are easily overcome by using a FrothTec system supplied by Clean Process Technologies.
NOTE - Although it may look as though there is a constant offset between the DP Cell and the FrothTec system, this difference will vary with changes in pulp conditions, ie density and aeration.

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