



A higher level of performance

Application Reference



Tailings Thickeners - Iron Ore Improving the efficiency of the tailings thickener in an iron ore wet plant

Application Problem:

The iron ore wet plant is used to remove clay and alumina from the ore after being processed through the primary crusher. The ore is fed through rotating drums and water is used for the removal of the clay. This process water containing clay in suspension is pumped to the tailings thickener to settle out the clay and return the water to the wet plant process. Control of the underflow pump to optimize the underflow density is important. Supplementary control of flocculant dosing is also important as the clarometer sometimes overdoses and underdoses.

Solution:

We used our high powered 3 crystal array transducer to penetrate through the suspended clay solids to operate off the high density compact bed level. The Orca transducer can track two independent densities so we also tracked the lighter hindered layer. By monitoring both outputs in the PLC we were able to monitor the deviation between the two densities, which provided control functions for bed level control and supplementary flocculent dosing control.

The electroactuator scum cleaning mechanism provided insitu cleaning for the transducer even with the clay in suspension.

Ordering information:

Tailings thickeners part no: OSIRDYX + OSIRT302S4XC6 + OSIRME-L3 + OSIRSC-A

Application guaranteed!

Hawk is a world leader in level, position and flow measurement, providing cutting edge equipment to the global industrial market. We have 30 years of experience and a record of success in a wide range of areas including mining/mineral processing, water supply/waste water, bulk material handling and chemical. Our on-going commitment is to provide industry leading technology and cost effective solutions.



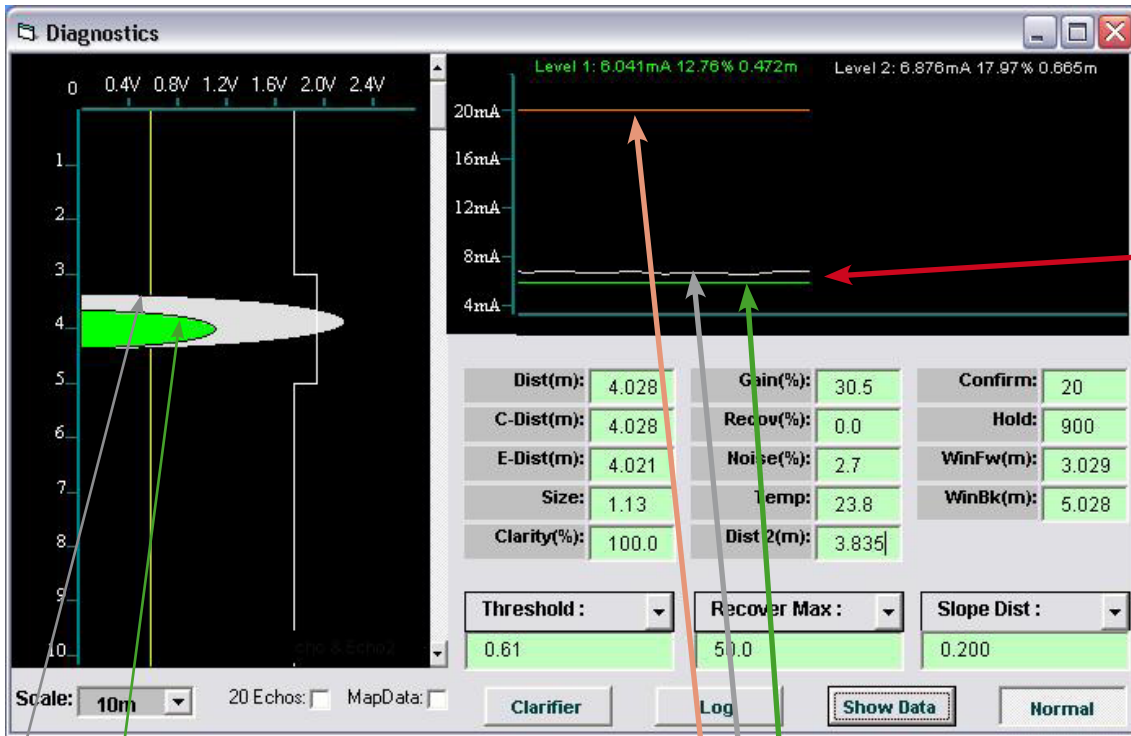
ORCA Sonar awarded "Product of the Year" twice.

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Good settling but overdosing flocculent

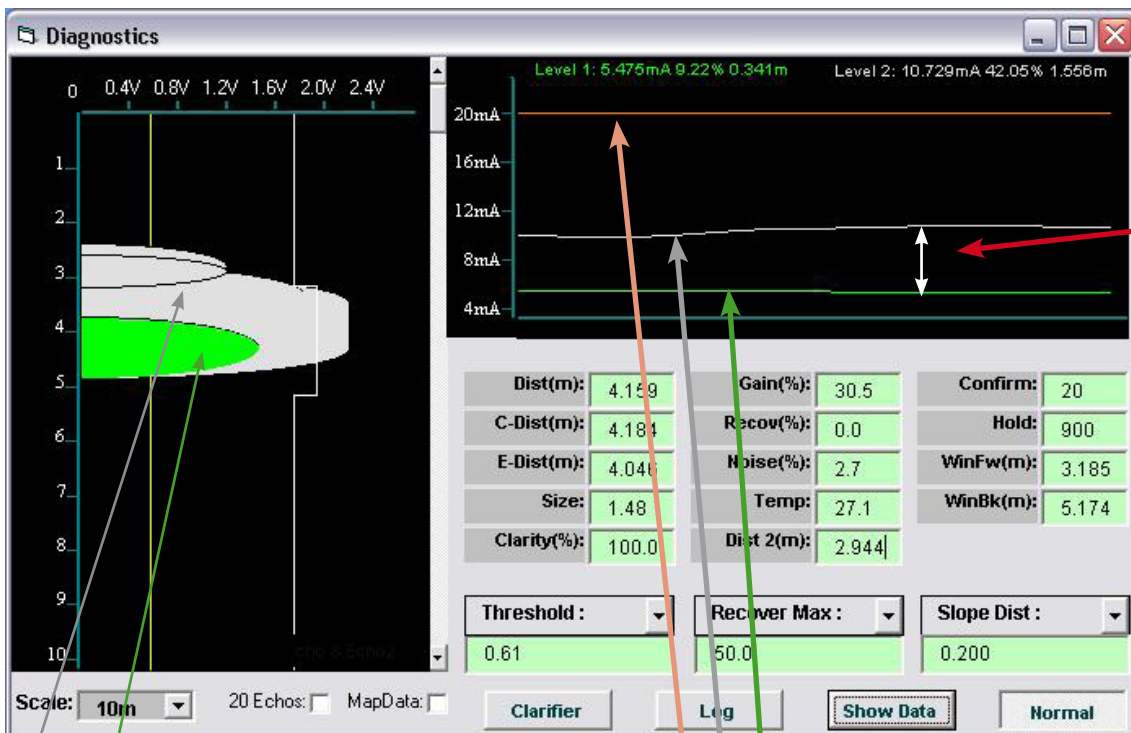
1. Compact bed level shows 472 mm which provides for an optimized underflow density

Channel 1: Compact bed level (Green trend)

Channel 2: Hindered interface layer (Grey trend)

Channel 3: Clarity of upper liquid zone (Orange trend)

2. Comparing the deviation distance between the compact bed (green trend) and the hindered layer (grey trend) of 195 mm shows an overdosing of flocculent. Deviations between the two densities of <400 mm mean we must reduce flocculent dosing.



Poor settling underdosing flocculent

1. Compact bed level shows 341 mm, which provides for an optimized underflow density.

Channel 1: Compact bed level (Green trend)

Channel 2: Hindered interface layer (Grey trend)

Channel 3: Clarity of upper liquid zone (Orange trend)

2. Comparing the deviation distance between the compact bed (green trend) and the hindered layer (grey trend) of 1215 mm shows an underdosing of flocculent. Deviations of greater >800 mm mean we must increase flocculent dosing.