

## Good Level Control On Flotation Concentrators Is Highly Profitable Says Slurry Solution Specialist

“The link between level control and profitability on a flotation concentrator is often under-estimated or even overlooked, and yet accurate control measurement is the key to increased lifespan for plant and plant equipment, thereby increasing its operational profitability” said Richard Rule, Director of eDart Slurry Valves (Pty) Ltd, based in Jet Park, Johannesburg.

The purpose of a flotation concentrator is to recover the most amount of valuable mineral to the concentrate, whilst at the same time keeping the quantity of concentrate down to a minimum, which enables the highest recovery of valuable mineral at the desired grade to be achieved. This is known as the ‘grade/recovery curve’ for the concentrator.

Rule added “The aim on a typical platinum concentrator is to reduce the volume of concentrate to be approximately 1% of the volume of the plant feed, while recovering > 85% of the metal. Allowing the grade to reduce in order to increase recovery is limited by the volume of concentrate that will be produced as a result.”

“The control system on all concentrators strives for the optimal point on the grade/recovery curve. The level control valve is the final piece of equipment in the process of valuable mineral reporting either to the concentrator as product, or being lost to the tails as waste.”

If the level measurement is above the setpoint, the grade produced will drop as the volume of concentrate increases, but the recovery will increase, and conversely when the level is below setpoint the recovery will drop off and grade will increase. “It is clear to see that maintaining a stable level at setpoint is vital to achieving an optimal performance of the flotation concentrator – if this does not occur then profitability is reduced dramatically. A 1% increase of recovery at optimal grade at a typical large flotation plant can equate to hundreds of thousands of Rands profit per month. On marginal concentrators it could be the difference between a viable mine

operation or not” said Rule.

### Required good level control parameters

eDart believes that the following parameters need to be considered carefully in order to obtain good level control:

- Process parameters being known and kept within the design envelope
- Plant layout designed with good level control in mind
- Level control valves selected and sized correctly
- Valves installed, commissioned and maintained correctly
- Level measurement and control working optimally
- Advanced control system for flotation banks comprising more than two flotation machines in series

Brian Whitehead, Plant Superintendent: Technical for Northam (Booyssendal) added “We have in the past called on eDart to assist us in resolving technical problems that have arisen with equipment. After getting to grips with the challenges we faced, eDart delivered an effective and long lasting solution. As an OEM, eDart are not only passionate about their unique customer solutions, eDart also commit themselves to ensuring that their products are performing ‘exceptionally well’. It is their customer commitment and relationship building that makes them stand head and shoulders above their competitors.”

“eDart has been active in the supply of slurry valves to the mining and mining-related industries since 2004, and we have accumulated a wealth of experience that enables us to assess customer requirements and offer a tailor-made solution. Plant layout and valve technology selection, for example, are but two critical elements to operating a more profitable plant. eDart is about the provision of effective solutions to the environment within which our valve technologies are to be applied, ensuring customer requirements are not only successfully met but met in the most efficient way” concluded Rule.

