



Water recycling crucial for sand washing plant in KSA

A new sand washing plant from CDE Global has recently been installed in the Kingdom of Saudi Arabia for the Abdullah Abdein factories for cement production.

The plant is located in Tabuk in North West KSA and includes an Evowash 151 sand washing plant and an Aquacycle thickener. The 150tph washing plant is processing a combination of dune sand and crushed limestone and gabbro in order to produce material for use in a new block making factory and ready-mix batching plant.

This has resulted in significant production efficiencies for Abdullah Abdein Bukhary as they were previously buying in the sand required for these operations. “This is a common model throughout the world” explains Iain Walker, CDE sales manager for the Gulf region. “The efficiency gains that can be realised by producing your own material rather than having to buy material in are significant.”

A key factor in the success of this installation is the ability of the Evowash to accept a combination of feed materials. This was required in this instance in order to produce the sand specification required for use in the black making factory and ready-mix production. Given the variation between the composition of the dune sand and crushed rock feed it was recommended that the 2 materials be blended prior to processing through the Evowash.

“By blending the materials the plant is able to

deliver the required 150tph processing throughput” says Iain Walker. “This is because the dune sand is a very fine material so if processing this material on its own the capacity of the wash plant would be reduced to approximately 120tph. Blending the 2 materials allows the customer to maintain the required capacity while also delivering high quality concrete sand.”

The feed material is delivered to the plant dry and the Evowash comes equipped with the additional option of a feed box mounted on the side of the sump with an integrated water inlet point. This ensures that the material is adequately fluidised before it enters the Evowash sump. The material is then pumped to a dual cyclone arrangement via the integrated Warman slurry pump

The cyclone underflow is discharged onto the Evowash dewatering screen with the -63 micron material removed and is subsequently discharged to stockpile with approximately 12% moisture content.

The cyclone overflow containing the waste water and the -63 micron material is discharged to the water treatment phase which employs an Aquacycle A400 thickener. This allows for 90% of the water used during the sand washing process to be recycled to the washing plant thus reducing the

volume of fresh water required to feed the plant. “It is this capability to recycle 90% of the wash water that makes washing possible in the Gulf” says Iain Walker. “The Aquacycle allows those who know their material would benefit from washing to proceed with a washing plant where it would otherwise not be possible due to the arid environment.”

The Aquacycle thickener works by separating the waste water from the fine material with the assistance of a flocculent. Material enters the thickener and is dosed with flocculent prepared in the integrated FlocStation unit. From here the material is delivered to the centre of the tank in order to ensure efficient settlement of the fine particles. “Discharging material in the centre of the tank ensures that it is as far away from the recycled water overflow point as possible thus ensuring maximum settlement of the fine particles” explains Iain Walker.

The flocculent forces the fine particles to bind together and sink to the bottom of the Aquacycle tank. The clean water overflows a weir at the perimeter and is then delivered to a holding tank before being re-circulated to the Evowash sand washing plant. The settled sludge is conditioned for discharge via the quadrake system which ensures that the sludge is of a consistency that allows it to be pumped greater distances than would otherwise be the case.

The project for Abdullah Abdein was delivered in partnership with the Middle East Development Company (MEDCO) who has headquarters in



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Jeddah and a number of other offices throughout the Kingdom of Saudi Arabia in Riyadh, Al-Khobar and Abha.

Commenting on the project, Mr. Tariq Abdullah Abdein the General Manager said “the Evowash operates efficiently and has had a positive effect on the quality of our concrete products. The plant has also reduced our water consumption”. Mr Sameh Awny El-Hofy of MEDCO added “The Evowash and Aquacycle in combination provides the template for how operators can introduce a washing plant to their processes in the Gulf region as it effectively tackles the issues around water availability that until now have been a major barrier.”

According to Iain Walker the introduction of the Aquacycle thickener allows operators to enjoy the efficiency gains that the Evowash offers and also benefit from the flexibility of the Evowash system. “The Evowash has been chosen on hundreds of our global installations for the simple reason that it offers the most efficient sand washing system available.”

Further information on the range of washing equipment offered by CDE Global can be found at www.cdeglobal.com



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