Ecodosing: An environmentally friendly BAT to secure seawater availability for utilities *

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ABSTRACT *

Power and Desalinations plants use large quantities of surface water to cool their power generation processes or to make potable water. However, besides water, mussels, oysters, and bacteria can enter the intake water system, which offers favourable conditions for settlement and growth of these organisms. This so-called biofouling can have a significant impact on the hydraulics and can result in major operational problems, including unplanned plant shutdowns due to head loss. Specifically in the construction phase of seawater intakes this is highly underestimated. To maintain a reliable and efficient operation of seawater intake systems, biocides are added to the intake to prevent biofouling organisms from settling and growing. Worldwide, the typical industrial anti-fouling practice involves continuous chlorination often combined with/or periodic shock-dosing at higher concentrations. This practice is generally based on after-the-fact observation of biofouling control efficiency. As such, these chlorination practices are not based on local requirements and often still results in biofouling growth in water systems. This puts the operational reliability and production capacity of Power and Desalination Plants at risk and results in significant increase in O&M costs.

Fortunately, more scientific methods offer opportunities to provide a site-specific biocide dosing regimen. In addition to this, modern environmental regulations encourage reduction in chlorine use. As a result, plant owners are seeking environmentally friendly, cost-saving alternatives. The Ecodosing principle combines these requirements and provides Power and Desalination Plants a cost-efficient biofouling control method with a guaranteed effectiveness that complies with stringent regulatory discharge limits.

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Ecodosing proved to reduce the overall use of biocides with 30-60% which resulted in high O&M costs savings while the risk for biofouling is eliminated. This resulted in an improvement of the overall plant performance and contributes to environmental sustainability by helping preserve the local natural environment.

Mr. Harry Polman is owner and Managing Director of the company H2O Biofouling Solutions B.V. With 25+ years of experience in the field of biofouling control in seawater intake/cooling systems, Mr. Polman is recognized as an international expert in the field of Biofouling control and defining biofouling control strategies for both existing and new to build facilities. He has authored or coauthored several international papers, book chapters and consulted in more than 250 Biofouling related projects worldwide. Mr. Polman developed the biofouling control technologies Pulse-Chlorination® and Ecodosing™ which are recognized as Best Available Techniques for controlling marine biofouling in seawater intake and cooling water systems.

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