+61 1300 303 281
info@dmi65.com

DMI-65 ADVANTAGES

- ✓Reduce downtime
- ✓Save on costly membrane cleaning and replacement
- ✓Significantly improve system performance reducing initial system capital investment
- ✓High Disinfection rate achieved
- ✓No leaching of chemicals
- ✓Substantial whole of life cost savings

DMI-65 IS USED IN:

- ✓ Reverse Osmosis Pre-treatment
- ✓ Drinking Water Treatment
- ✓ Arsenic Removal
- ✓ Irrigation Systems
- ✓ Landscape Reticulation
- ✓ Cooling Towers and Boilers
- ✓ Environmental Dewatering
- ✓ Industrial Applications
- ✓ Food and Beverage

ENVIRONMENTAL DEWATERING

Dewatering is defined by the process of removal of water from a site that accumulates in earthwork excavations or underneath structures at or below the existing water table. Dewatering activities are either permanent or temporary. Permanent discharges occur from sites that have structures at or below the existing watertable e.g. mine pits, underground car parks below buildings. Temporary discharges occur from sites that have water entering the earthwork excavation. A temporary discharge usually occurs for the duration of the construction phase.

Excavation below the existing groundwater level has the potential to create significant sedimentation, amenity issues and other water quality impacts on sensitive estuarine and freshwater receiving environments. The problem arises from the dewatering operations located in coastal areas where the natural surface levels are below 5mAHD. These areas are likely to contain Actual or Potential Acid Sulphate Soils. The dewatering required for the construction of these basements therefore often results in the extraction (through the use of groundwater spears) of low pH (acidic) groundwater.

The solubility of many metals is pH sensitive and in particular the solubility of iron and manganese increases significantly at lower pH. Because of this property, acidic groundwater often contains high concentrations of soluble metals, which are virtually colourless while in a dissolved (soluble) state. While present in a soluble form at low pH, these metals are also extremely toxic to many forms of aquatic life.

If the extracted acidic groundwater is discharged untreated to estuarine or marine receiving waters a range of possible impacts is likely to occur, including direct mortality or injury to aquatic life, reduction in the pH buffering capacity of estuaries, damage to infrastructure, and loss of visual amenity from visual plumes and staining.

An assessment of the impact on local vegetation, springs, wetlands and groundwater bores used by others in the vicinity of a dewatering project should be made prior to dewatering. Where assessment indicates potential reduction in water table or quality of groundwater, the operator should either design the dewatering system to overcome this threat or provide an acceptable alternative water supply to affected parties.

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dour problems that emanate from dewatering activities can negatively impact on residents surrounding the site. If the groundwater is contaminated, gases such as hydrogen sulphide and hydrocarbon can be released during the dewatering process. When released these gases can cause severe odours that can be offensive to nearby residents.

DMI-65 is an extremely powerful silica sand based catalytic action water filtration media that is designed for the removal of Iron and Manganese without the use of potassium permanganate through an Advanced Oxidation Process.

DMI-65 is infused technology and not just a surface coating technology, unlike other catalytic water filtration media, which removes the chance of any chemical leaching into the water stream.

In order to begin the process of oxidation of the iron (and manganese) in solution DMI-65 is designed to operate in the presence of chlorine or other oxidant. In this process the oxidant removes electrons and is consumed in the process. The operator needs to ensure that there is a 0.1 – 0.3 ppm free chlorine residual in the effluent water. Chlorine, fed as sodium hypochlorite or bleach (12.5% NaOCl), is the preferred oxidant since it is relatively inexpensive, readily available around the world and it is effective. It also performs the vast majority of any disinfectant process.

Advantages of using DMI-65 in Environmental Dewatering

REGULATORY COMPLIANCE
DMI-65 efficiently removes dissolved iron to the almost undetectable levels as low as 0.001 PPM and manganese to 0.001 PPM which will allow the discharge of water into the environment in virtually all jurisdictions.

REDUCED COSTS
The total cost of the iron and manganese removal water filtration system is significantly less than alternative solutions, the effectiveness, but relative simplicity, of DMI-65 based systems reduces the upfront capital expenditure on plant complexity as well as the ongoing operational expenditure in chemicals, power and backwash waste water recovery.

HIGH FLOW RATES
The infused technology of DMI-65 promotes the highest oxidation rate of any catalytic filtration media. This permits a significantly higher water flow rate to achieve the same level of iron and manganese removal. DMI-65 can operate at linear filtration velocities up to twice that of conventional media with a corresponding reduction in capital equipment costs.

HIGH LOAD CAPACITY
Because of the increased surface area due to the micro-porous structure of the matrix material, the DMI-65 also has higher iron and manganese load

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capacity which can extend the duration of filter runs and the time between backwashing, thereby reducing downtime, operating expense and wastage.

REGENERATION NOT REQUIRED

The media operates with a continuous injection of sodium hypochlorite at low residual levels (0.1 to 0.3 ppm) which eliminates the need for Potassium Permanganate.

WIDE OPERATING ENVIRONMENT

Stable and satisfactory performance at pH 5.8 to 8.6 and a maximum operating temperature of 113° F (45°C) reduces the need for investment to alter the operating environment.

LONG LIFE

DMI-65 is not consumed in the process giving it an expected operational life of up to 10 years, providing considerable advantages over other processes or media. The media does not display a decaying capacity to do its catalytic work. Over the 5 to 10 year period, through many backwashing operations of the bed to remove retained solids, an attrition loss of the media occurs by contact between particles and mechanical abrasion