

Weise Water Systems

References and case studies 2010



Weise Water Systems

Case studies 2010

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Version 5th July, 2010

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Case studies 2010

Case study, Italy

Processing of waste water from fish processing,
Project Partner Joseph Egli, Italia S.r.l.

An industrial fish processing company, based in Italy, produces highly loaded process water and has a demand for high quality use water. The use water has to fulfil highest standards and should be free of turbidity. A tight barrier for all particles larger 1 μm in the water treatment was a must. To be able ensuring a long term reliable water quality, a submerged Membrane-Bioreactor using an ultra filtration membrane has been chosen. A robust system made of highest quality materials with the lowest maintenance requirements was the end customers choice. Weise Water Systems GmbH has been able to supply fast and exactly what the customer needed. The process is mainly composed of a Membrane Biological Reactor set-up with denitrification and nitrification step.



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Performance characteristics:

| | |
|------------------------|--|
| Flow: | 6 m ³ /h |
| Average flux: | 22 l/m ² h at 2 chemical cleanings per year |
| Membrane surface area: | 350 m ² (MA04-90) |
| Permeate extraction: | Gravity flow |

Waste water feed:

| | |
|--------------------------|-------------------------|
| Total daily flow (DWF) | 144 m ³ /day |
| BOD ₅ loading | 1400 mg/l |
| COD loading | 2430 mg/l |
| TKN loading | 245 mg/l |

Plant performance:

| | |
|--|----------------|
| BOD ₅ | 95% reduction |
| COD | 90 % reduction |
| Ammoniacal Nitrogen [NH ₄ -N] | 90 % reduction |



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Case studies from Canada
Processing of municipal waste water

The Weise Water Systems GmbH exclusive customer Filter Innovations Inc. (FII) is based in Toronto Canada and cooperates since several years with Weise Water Systems GmbH. A lot of MBR projects have been realized together. FII designed MBR Systems focused specifically on small applications such as private households, condominiums, hotels, resorts, golf clubs, small villages and subdivisions. In many cases small private and public communities are located in environmentally sensitive areas such as conservation areas and parks near rivers and lakes. MicroClear® MBR systems can effectively meet any water discharge requirements and ensure long term achievement of any limitation given to discharged water. The extraordinary discharged water quality ensures that a reuse for gardening or toilet flushing is always possible.

MicroClear® submerged UF Membrane Bioreactors (MBR's) are the best available systems for waste water treatment and reuse. Today, MBR has proven itself as a better alternative to conventional water treatment. MBR systems are successfully being used to treat municipal, commercial and industrial waste water for discharge and reuse applications all over the world. Drivers of MBR in Canada are new stringent regulations regarding water quality, local stream-specific standards for surface water discharge, and space saving (land cost). Potential of reclamation, which can be considered as return of highly, treated waste water to a natural environment as lakes and rivers, and reuse for landscape and agricultural irrigation, makes MBR technology attractive for developing decentralized, on-site applications. Over the past 10 years, MBR technology has advanced to become a serious contender to conventional waste water treatment technologies, and is now considered a proven technology. MicroClear® MBR systems with submerged membrane modules offer two main advantages: A significantly improved effluent quality and a substantially smaller footprint.

Membrane Bioreactor (MBR) technology is a simple, yet effective combination of an activated sludge biological treatment process with membrane filtration. MicroClear® ultrafiltration membranes with pore size of 0.05 micron act as a physical barrier allowing the passage of clean water, while trapping suspended solids, bacteria, pathogens and certain viruses. The MicroClear® membrane filter eliminates the need for a secondary clarifier and for tertiary filtration. Our MBR supports a high biomass concentration, as a result reducing the required size of biological tanks; this in turn saves space and reduces overall construction cost. Overall, the MBR can reduce the footprint of a complete waste water treatment plant by as much as 50%.

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Case studies 2010

White House Brockville, Partner Company Filter Innovations Canada

Performance characteristics:

| | |
|------------------------|--|
| Flow: | 1.5 m ³ /h |
| Average flux: | 15 l/m ² h at only 1 chemical cleaning per year |
| Membrane surface area: | 112 m ² (2 times MA03-16) |

Waste water feed:

| | |
|--|----------------------------|
| Total daily flow (DWF) | 35 m ³ /day |
| Peak flow (3x DWF for 30 min.) | 1.2 l/s |
| Total BOD ₅ loading | 5.3 kg BOD ₅ /d |
| Total TN loading | 1.4 kg TN/d |
| Concentration of influent BOD ₅ | 150 mg/l |
| pH | 6-9 |

Consent limit:

| | |
|--|---------------------|
| BOD ₅ | < 15 mg/l |
| TSS | < 15 mg/l |
| Ammoniacal Nitrogen [NH ₄ -N] | < 1 mg/l |
| TP | < 0.9 mg/l |
| E-coli | < 100 counts/100 ml |



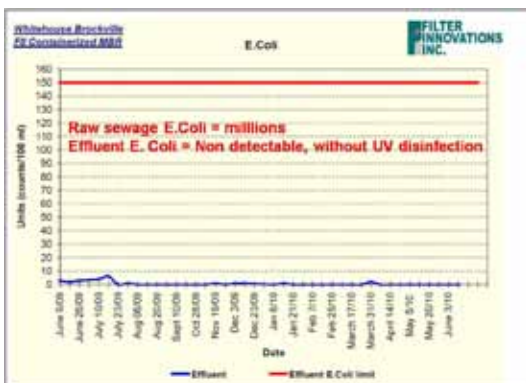
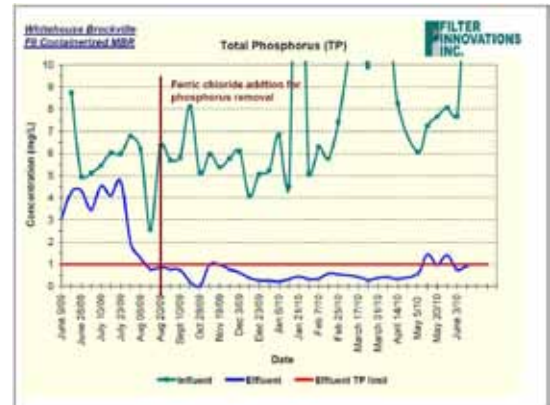
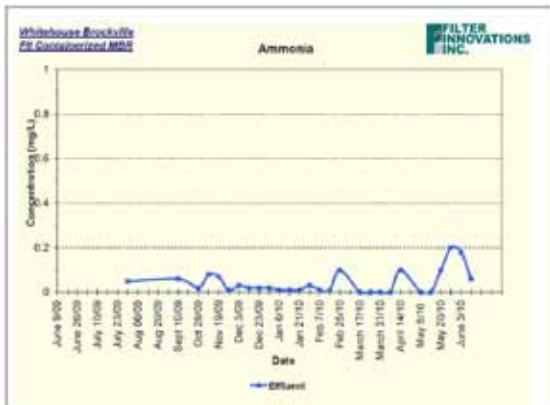
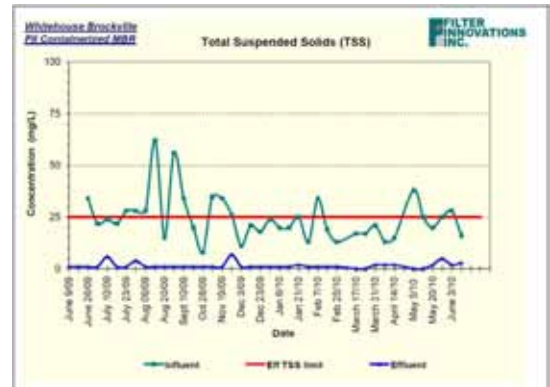
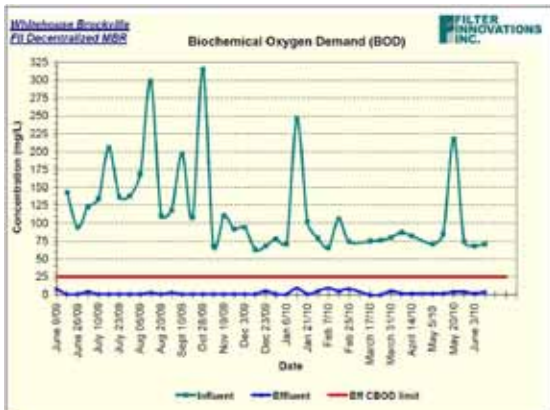
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1000 man camp, Cochrane, ON Partner Company Filter Innovations, Canada

Performance characteristics:

| | |
|------------------------|---|
| Flow: | 12.5 m ³ /h (3 phases, each phase is sized for an ADF of 100 m ³ /d) |
| Average flux: | 15 l/m ² h at only 1 chemical cleaning per year |
| Membrane surface area: | 840 m ² (6 MA03-40) |

Waste water feed:

| | |
|--|---------------------------|
| Total daily flow (DWF) | 300 m ³ /day |
| Peak flow (3x DWF for 30 min.) | 3.5 l/s (per phase) |
| Total BOD ₅ loading | 90 kg BOD ₅ /d |
| Total TN loading | 12 kg TN/d |
| Concentration of influent BOD ₅ | 300 mg/l |
| pH | 6-9 |

Consent limit:

| | |
|--|---------------------|
| BOD ₅ | < 15 mg/l |
| TSS | < 15 mg/l |
| Ammoniacal Nitrogen [NH ₄ -N] | < 1 mg/l |
| TP | < 1 mg/l |
| E-coli | < 100 counts/100 ml |



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Case studies 2010

Canadian Federal Agency, NS Partner Company Filter Innovations, Canada

Performance characteristics:

| | |
|------------------------|--|
| Flow: | 6.3 m ³ /h |
| Average flux: | 15 l/m ² h at only 1 chemical cleaning per year |
| Membrane surface area: | 840 m ² (6 MA03-40) |

Waste water feed:

| | |
|--|----------------------------|
| Total daily flow (DWF) | 151 m ³ /day |
| Peak flow (3x DWF for 30 min) | 3.4 l/s |
| Total BOD ₅ loading | 130 kg BOD ₅ /d |
| Total TN loading | 11 kg TN/d |
| Concentration of influent BOD ₅ | 860 mg/l |
| pH | 6-9 |

Consent limit:

| | |
|--|------------------|
| BOD ₅ | < 5 mg/l |
| TSS | < 5 mg/l |
| Ammoniacal Nitrogen [NH ₄ -N] | < 1 mg/l |
| TP | < 1 mg/l |
| Faecal coliform | < 200 MPN/100 ml |



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Case studies 2010

Hotel complex, Partner Company EnSo Environmental solutions, UK

Based in the Selborne Hampshire, United Kingdom the environmental solution provider EnSo International Ltd. built a sewage treatment plant for the “Holiday Inn” Hotel, Winchester. The plant has the capacity to treat 76 m³/d. Using the MicroClear[®] submerged MBR technology the plant provides excellent discharge water quality. Due to the location of the Hotel in a drinking water sourcing area, the discharged water has to fulfil strictest limitations.

Beginning of the construction phase was in September 2008 and the plant has been finished in December 2009. The hand over already happened on the 7th of December 2009 and since start up the plant shows expected high performance.

Incoming waste water from the kitchen enters a 2 section 18 m³ settlement / storage tank where solids and other food matter are settled out before the waste water enters the grease trap via gravity.

The incoming waste water enters a 3 section 36 m³ primary settlement / sludge storage tank where gross solids are settled out.

Settled sewage enters the main aeration tank where the presence of oxygen starts the biological treatment process. Partially treated water flows forward by gravity to the aeration section of the MBR tank for further treatment and distribution.

The aeration sections are also used to balance the incoming flow before it is further distributed to the two membrane sections.

Each of the Membrane sections is equipped with a filter housing type MA04-30 containing 105 m² filtration surface per filter housing. The filtration surface is provided by Weise Water Systems most successful product, the MicroClear[®] filters type MCXL. Each filter contains 7 m² ultrafiltration membrane. The MBR sections are equipped with a sludge pump. Filtered effluent (permeate) is pumped into a permeate header tank. Final effluent from the permeate tank flows by gravity into the final effluent sample chamber. The electrical controls, blowers and associated pipework will be housed within a kiosk.

All contracted project are based on MicroClear[®] MBR technology by Weise Water Systems. The treated water is infiltrated. Because of the drinking water sourcing in the area of the plant location it is necessary to fulfil the highest possible effluent quality. The origin consent limitations have included maximum 5 mg/l BOD₅ and a maximum TSS content of 5 mg/l. The finally applied consent limitations have been reduced to a maximum content of Ammoniacal Nitrogen [NH₄-N] 5 mg/l.

The discharged water quality exceeds the values of the European guideline for bathing water.

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Case studies 2010

Hotel complex, Partner Company EnSo Environmental solutions, UK

Performance characteristics:

Flow: 3.16 m³/h
Average flux: 15 l/m²h at only 1 chemical cleaning per year
Membrane surface area: 210 m² (MA03-40)

Waste water feed:

Total daily flow (DWF) 76 m³/day
Peak flow (3x DWF for 30 min) 3.4 l/s
Total BOD₅ loading 30.12 kg BOD₅/d
Total TN loading 11 kg TN/d
Concentration of influent BOD₅ 860 mg/l
pH 6-9

Consent limit:

BOD₅ < 5 mg/l
TSS < 5 mg/l
Ammoniacal Nitrogen [NH₄-N] < 1 mg/l
TP < 1 mg/l
Faecal coliform < 200 MPN/100 ml



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Case studies 2010

Egg washing process water treatment Partner Company FM Environmental, Malta

The end customer of FM Environmental is an egg producing company. The produced eggs from a 500.000 chicken resident equals a 2800 P.E. plant in terms of produced organic load at a relatively low hydraulic load that only equals 500 P.E. Together with Weise Water Systems GmbH the plant constructing company started up the 1st phase in 2005 treating 35 m³/day. Due to the successful business start and long term reliability of the process water treatment plant the end customer decided to extend the capacity towards 100 m³/d in 2009.

Target of the plant has always been to reduce the organic load by 99,9 % so the treated water can be released into a very sensitive river beside the plant. The plant extension has been realized very successfully during 2009 and since then the performance has been extraordinary.

| | Design Inlet | Design Outlet | Effluent sample (6/11/09) | Effluent sample (6/11/09) | Effluent sample (4/12/09) | Effluent sample (18/1/10) | Effluent sample (10/2/10) | Average results | % average removal |
|-----------|--------------|---------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|-----------------|-------------------|
| BOD | 1693 | 5 | 2 | 2.6 | 2 | 3 | 1.5 | 2.7 | 99.9% |
| COD | 4528 | 25 | 18 | 14 | 19 | 71 | 24 | 28.5 | 99.6% |
| Amm-N | 50 | 5 | 0.106 | 0.08 | 0.04 | 0.09 | 0.22 | 0.9 | 99.8% |
| Total-N | 216 | 20 | 3.06 | 3.9 | 12.9 | 4.2 | 13.6 | 9.6 | 98.6% |
| Total-P | 25 | 1 | 0.146 | 0.13 | 0.27 | 0.22 | 0.28 | 0.3 | 99.4% |
| SS | 1564 | 5 | 2 | 3 | 3 | 2 | 3 | 3.0 | 99.9% |
| Nitrate-N | | | | 2.5 | 3.1 | 4.2 | 11.5 | 5.3 | |



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Case studies 2010

Egg washing process water treatment, Partner Company FM Environmental, Malta

Performance characteristics:

| | |
|------------------------|---------------------------------------|
| Flow: | 100 m ³ /day |
| Membrane surface area: | 420 m ² (3 pieces MA03-40) |
| Flux rate: | 11 l/m ² h |

Waste water feed:

| | |
|--------------------------------|-----------------------------|
| Total daily flow (DWF) | 100 m ³ /day |
| Peak flow (3x DWF for 30 min) | 12.5 m ³ /h |
| Total BOD ₅ loading | 1693 mg BOD ₅ /l |
| Total COD loading | 4528 mg COD/l |
| Amm.-N | 50 mg/l |
| Total TN loading | 216 mg/l |
| Total P | 25 mg/l |
| TSS | 1564 mg/l |
| pH | 9–12 |

Consent limit:

| | | |
|--------------------------------|----------------------------|------------------|
| Total BOD ₅ loading | < 5 mg BOD ₅ /l | 99.7 % reduction |
| Total COD loading | < 25 mg COD/l | 99.4 % reduction |
| Amm.-N | < 5 mg/l | 90.0 % reduction |
| Total N | < 20 mg/l | 90.7 % reduction |
| Total P | < 1 mg/l | 96.0 % reduction |
| TSS | < 5 mg/l | 99.7 % reduction |
| pH | 6–9.5 | |

Discharge into sensitive river area

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Case studies 2010

Cruise liner on river Rhein, Strasbourg, France Partner Company Krüger WABAG GmbH

Located in Strasbourg, France, the Krüger WABAG GmbH built a sewage treatment plant for a cruise liner with a capacity of 200 m³/d. The plant is built in two separate lines, starting operation in April 2009.

The complete amount of water is dumped to the river Rhein. The quality exceeds the values of the European guideline for bathing water 2006/7/ of 15.2.2006 for excellent quality.

Performance characteristics:

| | |
|------------------------|-------------------------|
| Flow: | 8.33 m ³ /h |
| Membrane surface area: | 336 m ² |
| Average flux: | 24.8 l/m ² h |

Waste water feed:

| | |
|--------------------------|--------------|
| BOD ₅ loading | 200-400 mg/l |
| COD loading | 400-600 mg/l |

Consent limit:

| | |
|------------------|----------------|
| BOD ₅ | < 5 mg/l |
| COD | 20-40 mg/l |
| CFU per ml | < 1000 |
| E-coli | not detectable |
| Coliforme | not detectable |
| Turbidity | < 1 |



Weise Water Systems GmbH

Case studies 2010

Cruise liner on river Rhein, Strasbourg, France
Partner Company Krüger WABAG GmbH

The contracted project is based on MicroClear® MBR technology by Weise Water Systems. The most unique feature of the installation is how the tanks in which the treatment plant is to be located have been completely integrated into the boat hull. The treated water will be dumped into the river. Because of the sensitive eco system of the river it is necessary to fulfil a high effluent quality that can only be reached by a MBR system like the MicroClear® system.



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Case studies 2010

Housing Estate in Aranjuez, Spain
Partner Company MP Medioambiente, Sevilla, Spain

Located in Aranjuez, 50 km south of Madrid, the building company FADESA built a housing estate for 15.000 persons. The plant was built in two stages, the first one starting operation in 2005 and after proving the successful operation, the second stage in 2006 adding to a total output of 2200 m³ per day. The complete amount of water is pumped to the adjacent golf course for irrigation. The quality exceeds the values of the European guideline for bathing water 2006/7/ of 15.2.2006 for excellent quality.

Performance characteristics:

Flow: 92 m³/h
Average flux: 27.4 l/m²h
Membrane surface area: 3360 m²

Waste water feed:
BOD₅ 200-400 mg/l
COD 150-400 mg/l

MBR Effluent:
BOD₅ < 5 mg/l
COD 20-40 mg/l
CFU per ml < 1000
E-coli not detectable
Coliforme not detectable
Turbidity < 1



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Municipal waste water Edar Dolores, Torre Pacheco, Spain
Partner Company MP Medioambiente, Sevilla, Spain

Located in Torre Pacheco close to Murcia, the effluent derives from decentral farm estates and local industry. The plant started operation in 2005.

The complete amount of water is used for the irrigation of crops. The quality exceeds the values of the European guideline for bathing water 2006/7/ of 15.2.2006 for excellent quality and also the German norm for irrigation water that is used for vegetables (intended for raw consumption).

Performance characteristics

Flow: 27 m³/h
Average flux: 27.6 l/m²h
Membrane surface area: 980 m²

Waste water feed:
BOD₅ 200-400 mg/l
COD 150-400 mg/l

MBR Effluent:
BOD₅ < 5 mg/l
COD 20-40 mg/l
CFU per ml < 1000
E-coli not detectable
Coliforme not detectable
Turbidity < 1



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Case studies 2010

AGIP Motorway Station, Italy
Partner Company Mall Umwelttechnik GmbH, Donaueschingen

The AGIP motorway station is located at the A14 close to Ancona. The reason to install MicroClear® MBR technology was to recycle hygienically safe water for toilet flushing. A special task in this application was the high amount of urine and of chemicals for the cleaning of the sanitary installations. The plant is working since 2003.

Performance characteristics:

Flow: 2 m³/h
Average flux: 23.8 l/m²h
Membrane surface area: 84 m²

Waste water feed:
BOD₅ 100-200 mg/l
COD 150-400 mg/l

MBR Effluent:
BOD₅ < 5 mg/l
COD 20-40 mg/l
CFU per ml < 1000
E-coli not detectable
Coliforme not detectable
Turbidity < 1



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Greywater Recycling KfW-Bank, Frankfurt Partner Company ACO Passavant, Germany

The KfW is a government owned bank for all subsidies and credits to private people as well as companies. The premises include bureaus and flats, that are used part-time by employees. The greywater derives from the showers of the flats and the waste water from the kitchen. The recycled water is used for cleaning, toilet flushing and a fish-pond. The hygienic values have been approved by the Fresenius Institute. Starting operation in 2002, the plant is still operating to the full satisfaction of the client.

Performance characteristics:

| | |
|------------------------|-----------------------|
| Flow: | 1 m ³ /h |
| Average flux: | 23 l/m ² h |
| Membrane surface area: | 44 m ² |

Waste water feed:

| | |
|------------------|----------|
| BOD ₅ | 500 mg/l |
| COD | 400 mg/l |

MBR Effluent:

| | |
|------------------|----------------|
| BOD ₅ | < 2 mg/l |
| COD | < 30 mg/l |
| CFU per ml | < 200 |
| E-coli | not detectable |
| Coliforme | not detectable |
| Turbidity | < 1 |



Weise Water Systems GmbH

Case studies 2010

Container only for Blackwater – Norwegian Army - Tschad Partner Company Waste Water Solutions Group, Austria

A lot of different mobile plants have been developed by Waste Water Solutions Group (WWSG) based in Salzburg, Austria to specifically meet the needs of the Norwegian Army. MBR plants that are easily transportable and have little maintenance needs are in the focus of Armies world wide. The brilliant use water produced gives several options for reuse on site. This specific mobile plant has been dimensioned for 200 PE, each 50 l/PE d. After successful startup the compact units showed brilliant performance.

Performance characteristics:

Flow: 10 m³/day
Membrane surface: area 56 m²-2 pieces MA03-8
Flux rate: 25 l/m²h



Waste water feed:

Total daily flow (DWF) 10 m³/day–12 h/d
Peak flow (3x DWF for 30 min) 2 m³/h
Total BOD₅ loading 600 mg BOD₅/l
Total COD loading 1200 mg COD/l
Total N 210 mg/l
Total P 10 mg/l
TSS 700 mg/l



Consent limit:

Total BOD₅ < 5 mg BOD₅/l
Total COD < 25 mg COD/l
Amm.-N < 5 mg/l
Total N < 20 mg/l
Total P < 1 mg/l
TSS < 5 mg/l



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Municipal waste water, Bluestones, UK

Partner Company Rockbourne Environmental, UK

Bluestones is a recently built holiday village in Pembrokeshire on the edge of a National Trust area and was opened in the summer of 2008. The waste water treatment system was sized for a 2000 population equivalent. Being a remote location there was no sewer to discharge waste water so onsite treatment was the only available option. Treated effluent discharge is to a local wooded brook which runs into a small tidal stream. Water discharge quality had to meet exact standards such to pose no risk to the established shellfish farming in the estuary. Effluent quality not only had to meet the EEC Bathing Water and the Rare Birds Directives but also had to meet the Shell Fisheries Directive. Rockbourne Environmental who were awarded the contract against competitive tender designed and built the MBR. Developed and manufactured by Weise Water Systems in Germany the MicroClear® membrane modules, the core technology of a MBR system, represents the current state of the art; offering true backflush capability in a high efficiency module that boasts fully laser welded construction. By utilising ultrafiltration membranes rather than microfiltration higher removal rates of bacteria and viruses can be achieved.

The patented membrane plate design has multiple exit points for the permeate (filtrate) and coupled with the short path length before the permeate reaches the collector manifold minimises the pressure losses. This is critical on a system that operates at a low vacuum pressure (100–150 mbar). The modular concept allows for easy scale-up with confidence and the membrane module aggregates come complete with installed fine air diffusers with optimised bubble size for efficient air scouring. In using fine air diffusers it is typical for over 50% of the air requirement for the biology to be provided from the membrane air scouring. In contrast to other designs the diffusers are maintenance free and self cleaning. MCXL waste water treatment plant (WWTP) with collection, pre-treatment, biological and MBR tanks all positioned underground and the site landscaped to minimise visual impact on the environment. The small footprint of the MicroClear® MBR enabled such a design concept which was a major factor in Rockbourne securing the contract. The plant was designed as 2 parallel streams which could be independently operated. Each stream has two MBR chambers which can be independently put into and taken out of service. This allows for high flexibility in meeting varying effluent loads and the ability to clean in place one unit at a time whilst the other 3 units remain in service.

The design also takes full advantage of the MicroClear® Membrane modules backflush capability and by so doing extends the intervals between chemical cleaning, reducing both maintenance times and chemical consumption. The plant has now been in operation for 9 months and has not yet needed to be chemically cleaned. Effluent quality surpasses all three of the stated directives. The plant with its compactness, minimum visual impact and high quality treated effluent raises the bar on the standards that can be competitively achieved through innovation and engineering excellence.

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Partner Company Rockbourne Environmental, UK



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Landfill leachate, UK Partner Company Rockbourne Environmental, UK

GAYTON is a landfill site in Northamptonshire where the leachate is high in iron as well as having a high chemical to biological COD ration. Coupled to this the leachate is quite dilute with a feed COD of only around 1000 mg/l adding to the treatment challenges. The site had an existing SBR waste water treatment plant which struggled to meet discharge consent limits subsequent to the landfill being capped. In June 2007 Rockbourne Environmental upgraded the treatment plant to a MBR system utilising Weise Water System's MicroClear® MC03 modules. Although the plant is of modest size it demonstrates the ability of this core membrane technology to work successfully with highly fouling, challenging effluent streams. The WWTP has a very small footprint and since it was commissioned in the summer of 2007 the treated effluent has not failed to meet discharge consent. Actual discharge quality is typically; BOD <10mg/l, ammonical nitrogen < 0.1 mg/l and suspended solids <1.0 mg/l. This is a testament to the application of "best available technology" as per the UK landfill site PPC regulatory compliance standards.

Performance characteristics:

| | |
|------------------------|--------------------------------------|
| Flow: | 48 m ³ /day |
| Membrane surface area: | 140 m ² - 1 piece MA03-40 |
| Flux rate: | 16 l/m ² h |

| | |
|------------------------|------------------------|
| Total daily flow (DWF) | 48 m ³ /day |
| Total COD loading | 1000 mg COD/l |

| | |
|------------------------|-------------------------------------|
| | Consent limit: published by Tender: |
| Total BOD ₅ | < 10 mg BOD ₅ /l |
| Total N | < 0.1 mg/l |
| Total P | < 5 mg/l |
| TSS | < 1 mg/l |



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Case studies 2010

Poultry processing plant, UK Partner Company Rockbourne Environmental, UK

A poultry rendering plant near Newark in Leicestershire has a need for process water reuse. The effluent comes from two waste streams; evaporator condensate and equipment/floor washings. Historically the effluent was collected and tankered away to a sewage treatment works. Odour issues in the neighbouring village and the opportunity to save on tankering costs were the principal drivers behind installing a waste water treatment plant onsite.

The decision to install a membrane bioreactor was due to the need for a high quality treated water for re-use in the factory for cleaning and direct discharge into the river Trent.

The plant at JG Pears was commissioned in the Summer of 2008. Downstream of the biological treatment there is a DAF system to remove fats before the feed splits to three parallel MBR tanks with future provision for a fourth. All of the MBR units are controlled automatically and are fully independent of each other. They can be rapidly brought into service or taken off line. That gives a high degree of flexibility to meet varying loads and to enable maintenance to be carried out on one unit whilst the others remain in operation. In operation the permeate is drawn off by applying a low vacuum of 100 to 150 millibar on the filtrate side of the membrane. Full advantage can be taken from the backflush facility prolonging the intervals between chemical cleaning.

Treated effluent quality again surpasses design specification and demonstrates the applicability of MicroClear® membrane bioreactor technology to varied effluent streams.



Weise Water Systems GmbH

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Case studies 2010

A MBR system based on Weise Water Systems MicroClear® technology is able to guarantee highest discharge water quality. The systems work extremely reliable even if each is fed with very different feedwaters and faces environmental challenges.

For any inquiry do not hesitate to contact us immediately:

[HTTP://WWW.WEISE-WATER-SYSTEMS.COM](http://www.weise-water-systems.com)

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