



# IFM DESIGNS A TRIAL UF/RO SYSTEM TO TREAT HIGH AMMONIA

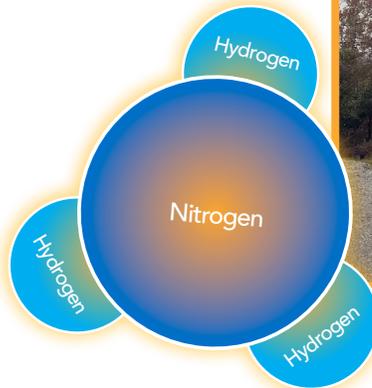
## MUNICIPAL WASTEWATER

A long-term client had a facility with compliance issues. They were particularly struggling with high ammonia levels due to urea in the stream. The facility's waste stream is primarily composed of storm water runoff from the parking lot area and flows to an Environmental Control Pond (ECP). When the ECP was designed and installed it was not intended to treat ammonia.

**DESIGN SOLUTION >** IFM took laboratory and flow data from the waste stream to design a temporary, trailer mounted pilot treatment system to remove ammonia.

- A small Ultrafiltration (UF) / Reverse Osmosis (RO) system was put on site, and IFM personnel tested equipment, the process and the process efficiency for 45 days to ensure that the treatment would meet NPDES permit limits.
- The pilot system pumped water out of the ECP and was treated with the membrane UF system.
- Permeate water (clean water) from the UF system was then treated by the RO system.
- The concentrated contaminants from the RO unit were then fed back through the process for further treatment.
- Operators collected and had analyzed the permeate water samples with impressive results for the removal of CBOD, TSS, pH, Oil & Grease, Ammonia and Chemical Oxygen Demand.
- All results were found to be in compliance with the NPDES permits and enabled the permeate water to be discharged into the waters of the State.

- During the 45-day pilot, IFM processed more than 31,000 gallons of water which was pumped back into the ECP.
- Our client was delighted with the success of the pilot membrane treatment system. The result exceeded expectations, bringing ammonia levels that were as high as 45 mg/L. to less than 2.0mg/L.



## CONTAMINANT REMOVAL

CBOD	TSS	NH3	COD	O&G	TKN	Phos	TOC
98.2	93.6	97.9	97.7	62.8	98.1	95.6	97.9

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During the 45-day period, the temporary system was subject to heavy rain, warm temperatures, low flow, and high concentrations of ammonia. This is an accurate representation of environmental changes that would occur throughout the year. IFM is now determining the sustainability of this type of permeant treatment system at this facility.

