METITO

Commitment to a Cleaner Environment

Treated Sewage Effluent Polishing Plant, Mixed Bed Bio-Reactor (MBBR/Ultra-Filtration/ Reverse Osmosis) - Dubai Parks, UAE

A Case Study

Key Data

Location	Dubai, United Arab Emirates (UAE)
Plant Type	Treated Sewage Effluent Polishing Plant, Mixed Bed Bio-Reactor (MBBR/Ultra-Filtration/ Reverse Osmosis)
Capacity	1,200 m^3/day
Use	Supply of Recycled, Polished Makeup Water to Reuse in Park Lagoons
Client	Al Nasr Contracting Company LLC
End User	Dubai Parks and Resorts LLC
Contract Type	Design and Build

Introduction

Dubai Parks and Resorts is an iconic project and the Middle East's largest multi-themed leisure, entertainment and theme park destination. The establishment is located on Sheikh Zayed road in Dubai, UAE, strategically located midway between Dubai and Abu Dhabi International Airports. Dubai Parks and Resorts is spread over 25 million square feet and features more than 73 attractions and rides spread across three theme parks: Motiongate Dubai, Bollywood Parks Dubai and Legoland Dubai. The park also includes: Lapita, a global Marriott operated family resort hotel (known as "Hotel Lapita"); River park; and a complementary and centrally located retail, dining and entertainment district connecting the three theme parks and the hotel.

An integral part of the infrastructure development for Dubai Parks and Resorts is the Lagoon which is strategically constructed across the establishment to enhance the overall landscaping and beautification of the resort. Considering the year round hot climate in the UAE, it is expected that the lagoon water may experience considerable evaporation. To address this challenge the Treated Sewage Effluent Polishing Plant, Mixed Bed Bio-Reactor (MBBR/Ultra-Filtration/Reverse Osmosis) project was developed as a sustainable solution.

Scope of Work

The scope of works awarded to Metito included the complete design engineering (process, mechanical, electrical, automation & control), equipment supply, and the installation and commissioning of the treatment process system and plant.

- **TSE Polishing:** In this package, water from five streams: TSE water from Dubai Municipality and Dubai Parks STP: cooling tower blowdown and spent backwash water from carbon filters, UF systems and high rate sand filters of the side stream filtration, are all treated by the UF-RO system to produce makeup water for the lagoon.

- **Side Stream Filtration:** Overflow water and water drawn off by skimmer pumps from the lagoon is treated in high rate sand filters and UV units to remove suspended impurities and disinfect the water. The disinfected water is then aerated and discharged back into the lagoon.

- **Pool Water Filtration & Chlorination:** Overflow water and water drawn by skimmer pumps from the Water Wheel Pool, another attraction in Dubai Parks, is passed through Dual Media Filters. Filtered water is then chlorinated to disinfect the water and discharge back into the pool.

- **Pumping Stations:** The scope of work in this package is limited to providing the pumps and associated valves and piping for subsequent uses.

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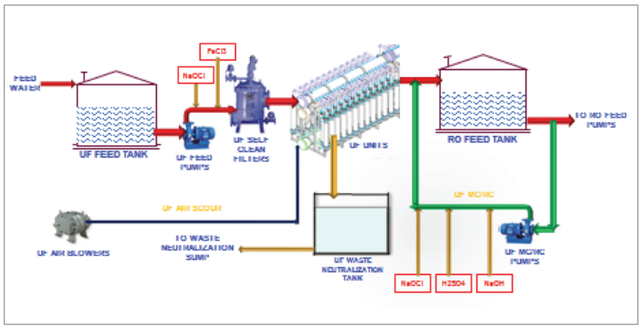
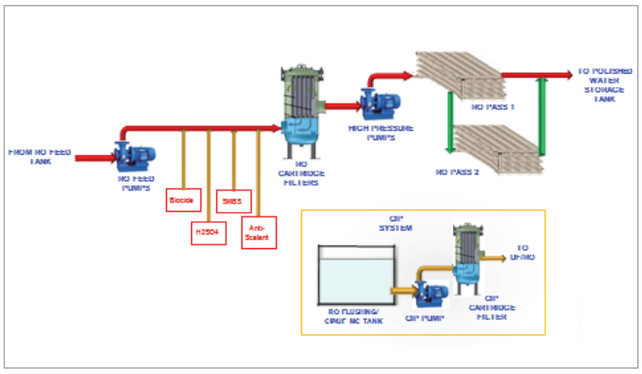
Following is an overview of the package deliverables:

RO Units Schematic Flow Diagram





Key Benefits

Dubai Parks and Resorts is a destination designed to be one of the most environment-friendly developments of its kind. Extensive landscaping and eco- friendly polices underline its focus on a green, clean environment. With the lagoon being an integral part of the destination landscaping, developing the TSE Polishing Plant as a solution to treat, recycle and reuse water as makeup water for the lagoon has many benefits:

- The solution offers a more economically viable alternative for water provision compared to using other water resources for makeup water
- The utilisation of environmentally friendly and energy saving technology lowers the environmental footprint to a minimum, in line with the policies implemented across the establishment