

TROJAN UV™

CASE STUDIES

Municipal Wastewater



Plant Name: Terrence J. O'Brien Water Reclamation Plant
Location: Skokie, Illinois
System: TrojanUVSigna™

UV Kind of Town, Chicago Is

PROJECT BACKGROUND

The Metropolitan Water Reclamation District of Greater Chicago (MWRD) – of which the Terrence J. O'Brien Water Reclamation Plant (WRP) is part of – has made a number of upgrades to its treatment process in recent years. The addition of UV disinfection has been a critical part of these upgrades; it played a key role in improving water quality throughout the Chicago Area Waterway System (CAWS).

The Terrence J. O'Brien WRP (originally called North Side) was built to serve residents in communities north of downtown Chicago. In operation since 1928, it originally treated sewage for a population of 800,000 within a 78-square-mile area, but now both the service area and the population are nearly twice as large. The plant now serves over 1.3 million people in an area of 143 square miles and treats an average of 230 MGD of wastewater.

A NEED FOR INNOVATION

The need for change was recognized by the MWRD Board of Commissioners in 2011 when new regulations required the facility to add a disinfection process to their wastewater treatment system. With the goal of re-classifying the CAWS to allow primary contact, they set out to research the most economical and optimal disinfection technology for the facility.

After investigating various disinfection approaches and technologies, officials determined that UV was the optimal solution for the plant and application.

A low total cost of ownership and the fact that, with UV, there are no disinfection by-products to worry about were key factors in the decision.

In 2013, the MWRD announced that they had selected the TrojanUVSigna for installation at the Terrence J. O'Brien WRP. Municipalities around the world have installed the TrojanUVSigna for

several reasons. For the MWRD, those reasons included:

- Lowest number of UV lamps required
- Ease of operation and maintenance
- Low total installed capital cost

SYSTEM DESIGN PARAMETERS

PEAK DESIGN FLOW:
535 MGD (2,025 MLD)

ULTRAVIOLET TRANSMITTANCE (UVT):
65% at 254 nm

TOTAL SUSPENDED SOLIDS: 15 mg/L

DISINFECTION REQUIREMENT:

- 200 Fecal Coliform / 100mL (30-day geometric mean)
- 400 Fecal Coliform / 100mL on a 90th percentile
- 126 E-Coli / 100mL (30-day geometric mean)
- 410 E-Coli / 100mL on a 90th percentile

CASE STUDIES

THE FIRST, ONE OF THE LARGEST, AND AWARD-WINNING

The TrojanUVSigna system at the Terrence J. O'Brien WRP was fully commissioned in January 2016, and has been providing effective, reliable disinfection since.

The plant was the first among the 10 largest wastewater plants in the U.S. to implement UV disinfection and is now one of the largest UV wastewater treatment installations in the world.

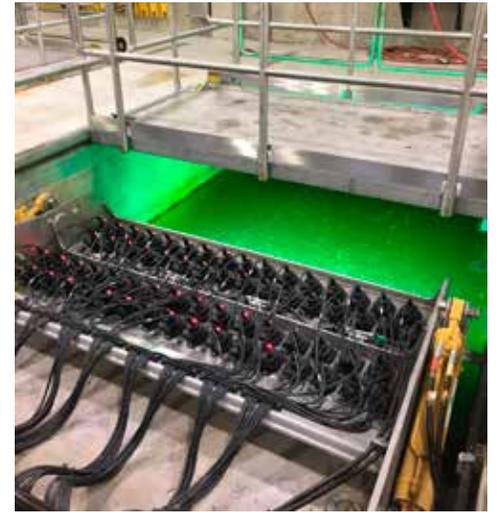
In 2017, the UV disinfection project at the plant won the American Council of Engineering Companies (ACEC) Illinois Chapter Honor Award, one of the top prizes bestowed by the chapter each year.

REAPING THE BENEFITS OF UV

The TrojanUVSigna installed at the Terrence J. O'Brien WRP utilizes TrojanUV Solo Lamp™ and Driver Technology. This revolutionary technology combines the best features of both low- and medium-pressure lamps, ultimately providing a number of tangible benefits, including reduced power consumption and cost-saving lamp dimming capabilities.

The TrojanUVSigna is also equipped with ActiClean™, a patented chemical and mechanical sleeve cleaning system. This system provides superior, automatic sleeve cleaning without having to remove UV banks from the channel or disrupting disinfection.

“From the kayakers and water taxis, new boat houses and beautiful Riverwalk, we are witnessing a major influx of activity along the Chicago River and other local waterways,” said MWRD Board of Commissioners President Mariyana Spyropoulos. “We believe that the increase in activity is a testament to the impact that this new technology at O'Brien Water Reclamation Plant is already starting to make. The new safeguards put into place at O'Brien will protect our waters for generations to come.”



TERRENCE J. O'BRIEN WRP UV DISINFECTION CONFIGURATION

UV SYSTEM TYPE:

TrojanUVSigna

NUMBER OF CHANNELS: 7

NUMBER OF UV BANKS: 14 (2 banks per channel)

NUMBER OF LAMPS PER BANK: 64

TOTAL NUMBER OF LAMPS: 896



About TrojanUV

TrojanUV designs and manufactures pressurized and open-channel UV disinfection systems for municipal wastewater and drinking water, as well as UV-oxidation systems for environmental contaminant treatment and potable and non-potable reuse applications. We have the largest municipal UV installation base in the world and are proud to play an important role in continually advancing UV disinfection technology. TrojanUV is part of the Trojan Technologies group of businesses.

Head Office (Canada): 3020 Gore Road, London, Ontario, N5V 4T7 Canada | Telephone: (519) 457-3400 Fax: (519) 457-3030

Trojan Technologies Deutschland GmbH: Aschaffener Str. 72, 63825 Schöllkrippen, Germany | Telephone: +49 6024 6347580 Fax: +49 6024 6347588

www.trojanuv.com | For a list of our global offices, please visit trojanuv.com/contactus.

Copyright 2018. Trojan Technologies London, Ontario, Canada. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means without the written permission of Trojan Technologies. The products described in this publication may be protected by one or more patents in The United States of America, Canada and/or other countries. For a list of patents owned by Trojan Technologies, go to www.trojanuv.com. (0518)

TROJAN UV
A TROJAN TECHNOLOGIES BUSINESS

Water Confidence™