

## Project Case Study

### PHARMACEUTICAL WASTE WATER RECOVERY

<b>Client:</b>	Undisclosed
<b>End User:</b>	Undisclosed
<b>Capacity:</b>	13m <sup>3</sup> /hr
<b>Contract Value:</b>	circa £550K
<b>Scope:</b>	Design, build, install & commission
<b>Contract Completion:</b>	November 2006 to July 2007



#### General

We were approached by a consultant to investigate the possibility of recovering pharmaceutical waste water for re-use as high quality wash water in a pharmaceutical manufacturing process.

The waste water contains up to 1% sodium chloride. The required recovered water quality for re-use is <20 µS/cm conductivity and <500 ppb TOC.

A two pass Reverse Osmosis (RO) package was tendered, with the design based on an overall recovery of 85% using FilmTec high rejection TFC spiral wound seawater RO membrane elements.

Due to the high chloride content of the waste water, the 1<sup>st</sup> pass high pressure piping and valves were constructed from Duplex and Super Duplex Stainless Steel for corrosion resistance.

#### Project Details

Our client, acting as project manager for the end user, awarded the contract for the equipment in November 2006.

Due to on-site access restrictions, the main package comprised of three separate skids that were bolted together once in place. This enabled the skids to be skidded into position via existing access routes with minimal disruption. Electrical, pneumatic and process connections between the skids were designed to enable ease of re-connection on-site.





The package is fully self-contained and includes electrical controls, analytical instrumentation (including TOC analyser) and a CIP system.

Prior to despatch, the package was subject to a comprehensive Factory Acceptance Test witnessed by the client at our Rochdale works.

The package was designed, manufactured and tested at our works, including all carbon steel, Stainless Steel, Duplex and Super Duplex Stainless Steel fabrications.

All hygienic pipework was orbitally welded in-house.

The plant has been designed to require minimal man power during usual operation and is highly automated.

Operator interface is via a touch-screen Human Machine Interface that also provides alarm history and logs plant operating parameters.

Ethernet connectivity has been integrated into the control system to enable remote monitoring.



### Process Flow

