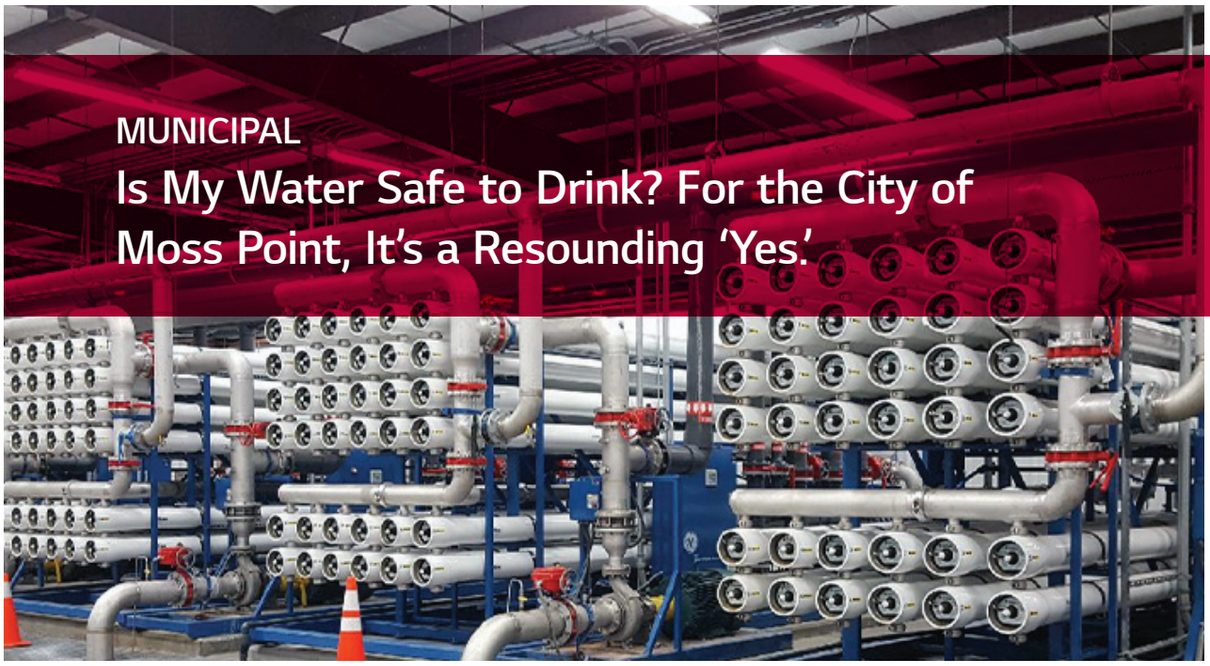
LG Chem

LG Water Solutions

Our Stories



MUNICIPAL

Is My Water Safe to Drink? For the City of Moss Point, It's a Resounding 'Yes.'

Image: RO System at Moss Point

Product type: **Energy Saving BWRO**
RO model: **LG BW 400 ES**

Application:
Municipal Potable Water

Background

Moss Point, a city in south Mississippi, relies on underground aquifers and wells to supply drinking water to over 6,000 households and 400 businesses. For decades, the water was treated with chlorine and safe to drink, but the residents complained of brown coloring and an unpleasant odor in the water. At that time, the Mississippi Department of Health scored the City's water two out of a possible five. As a result, in 2009, the City upgraded its water treatment to incorporate a reverse osmosis (RO) system, securing a reliable supply of clean water receiving top scores every year since the installation.

The Moss Point RO system, operated by H2O Innovation, Inc., consists of four skids, each producing 1.25 MGD (4,730 m^3/d) of crystal-clear water to the City, removing all impurities, discoloration, and sulfurous taste. Table 1 below shows additional system information.

Table 1: RO System Facts

Item	Details
Total capacity	18,920 m^3/d (5.0 MGD)
No. of trains	4
Capacity per skid	4,730 m^3/d (1.25 MGD)
OEM	H2O Innovation
Membrane model	LG BW 400 ES
System design	24:12 (7M)
No. of elements	1,008
Avg. flux	21.3 lmh (12.5 gfd)
Recovery	80%

"LG NanoH_2O™ membranes are performing very well, and on the service side, LG has gone above and beyond on many different levels but primarily by helping us track the data and by letting us know when the optimum time to clean is."
Samuel Franklin, Plant Manager

NanoH_2O™

CS36-EN-100821

Results

Since being commissioned in July 2017, LG NanoH$_2$O™ membranes demonstrated solid performance. Figures 1 and 2 show the normalized performance of two out of four trains. Despite high organic content in the well water, which caused rapid fouling and triggered frequent cleanings, the following was observed:

- Normalized permeate flow (Figure 1) recovered well to the original values after each cleaning;
- The normalized differential pressure (Figure 2) also demonstrated good recovery after each CIP;
- Normalized salt passage remained well under control and the membranes are meeting all permeate requirements well below the Maximum Contaminant Levels (Table 2).
- Overall, the membrane performance was very stable and robust after multiple cleaning events.

Outcome

LG Chem's energy-saving BW 400 ES membranes continue to produce high-quality water at low energy consumption for many years at the City of Moss Point. The stabilization of performance after cleanings is a strong indication of membrane reliability and its operation. The City and the RO system have further benefited from the top-notch operations team of H2O Innovation, providing seamless operation and keeping good data logs, thereby allowing timely membrane cleanings.

Figure 1: Normalized Permeate Flow (gpm)

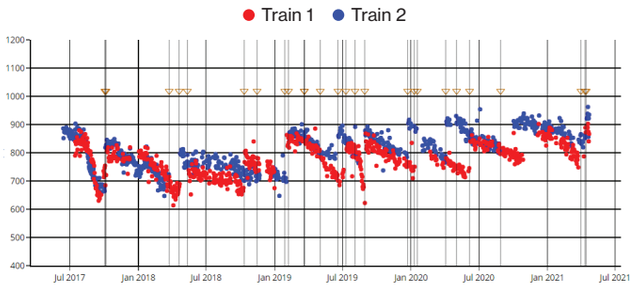


Figure 2: Normalized Differential Pressure (psi)

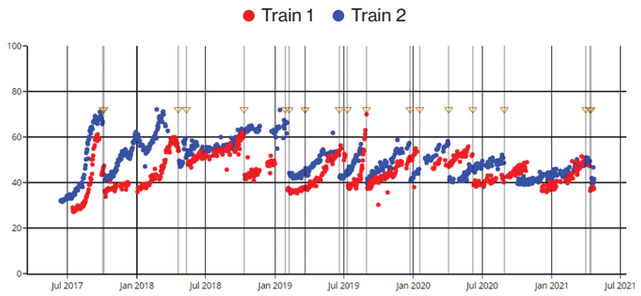


Table 2: Annual Drinking Water Quality Report

Contaminant	Unit	MCL	Final permeate
Fluoride	ppm	4	ND
Chromium	ppm	0.1	ND
Barium	ppm	2	ND
Selenium	ppm	0.05	ND
Lead	mg/L	0.015	ND
Nitrate	ppm	10	ND
Nitrite	ppm	1	ND
Nitrate-Nitrite	ppm	10	ND
Sodium	ppb	20,000	11,000