

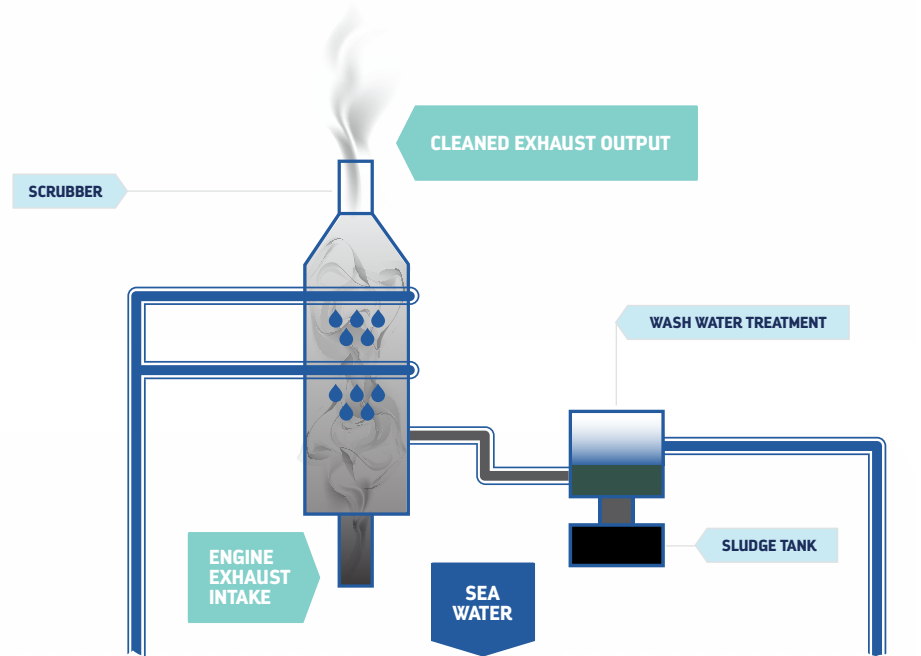
IMPROVING AIR EMISSIONS ADVANCED EMISSION PURIFICATION SYSTEMS

A key principle of our Save the Waves program is continuous improvement. Advanced Emissions Purification Systems (AEPs) help us improve air quality. Often referred to as “scrubbers” AEPs are a new technology for the marine industry, but have a long history of use in land-based industries.

HOW THEY WORK

AEPs work by spraying engine exhaust with a fine water mist from strategically placed water jets within the ships funnels/stacks. As the water mist combines with the sulfur dioxide in the exhaust, it causes a chemical reaction and removes the sulfur while producing a clean white plume. The water that is not evaporated or turned into steam is drained and treated.

As a result, AEPs remove approximately 98% of sulfur dioxides, 40-60% of total particulate matter and up to 12% nitrogen oxides.



WHAT WILL YOU SEE?

A WHITE PLUME MADE OF WATER VAPOR OR “STEAM.”
These emissions meet or exceed all regulatory requirements.

To ensure compliance with all regulatory requirements for emissions, our AEP systems use an in-line electronic analyzer, known as a CEMS unit (Continuous Emission Monitoring System), to monitor, adjust and record emission levels continuously.

All of our AEPs/scrubbers are approved as meeting MARPOL criteria for international use, both in port and at sea, by a 3rd party Marine Classification Society.

Learn more about our sustainability efforts at <http://www.rclcorporate.com/environment/>

