

October 20, 2021

Kawasaki Kisen Kaisha, Ltd.

“K” LINE successfully separated and captured CO<sub>2</sub> from exhaust gas  
in World’s First CO<sub>2</sub> Capture Plant on Vessel

~Captured CO<sub>2</sub> has Purity greater than 99.9%, Demonstrating performance in line with Plan~

Kawasaki Kisen Kaisha, Ltd. (“K” LINE) has successfully separated and captured carbon dioxide (CO<sub>2</sub>) from the exhaust gas emitted from the vessel, coal carrier “CORONA UTILITY”(operated by “K” LINE for Tohoku Electric Power Co., Inc.), which has been installed the “CC-OCEAN” project for the verification of CO<sub>2</sub> capture plant onboard as part of the “Research and Development for advancing marine resources technologies” (Note 1), in cooperation with Mitsubishi shipbuilding Co., Ltd. (“Mitsubishi Shipbuilding”) and Nippon Kaiji Kyokai (“Class NK”).

As a result of demonstration, the captured CO<sub>2</sub> had a purity (Note 2) of more than 99.9%, which is in line with the planned performance.

In early August 2021, after installation of a small-scale CO<sub>2</sub> capture plant (Note 1), experts from Mitsubishi Shipbuilding were onboard the vessel to operate, maintain the plant, and instruct the ship’s crew how to operate, as well as measured, analyzed the captured CO<sub>2</sub> and evaluated the system performance.

From mid-September, the ship’s crew has been conducting the operation, measurement and maintaining the plant, and will continue to evaluate the safety and operability of the CO<sub>2</sub> capture plant in order to sort out the issues to be considered and conduct research and development for future commercialization.

Based on the “K” LINE Environmental Vision 2050 (Note 3), we will continue to research, develop, and introduce various environmental load reduction technologies, including the “CC-OCEAN” project, and contribute to activities aimed at achieving GHG reduction targets.

(Note 1)

Announced on 31-Aug 2020: “CC-Ocean” (Carbon Capture on the Ocean) project

<https://www.kline.co.jp/en/news/csr/csr-5587043701830807195/main/0/link/200831EN%20.pdf>

Announced on 5-Aug 2021: Launch of the “CC-OCEAN” project demonstration

<https://www.kline.co.jp/en/news/csr/csr7601431474845700352/main/0/link/210805EN.pdf>

(Note 2) The purity of the CO<sub>2</sub> captured by the CO<sub>2</sub> capture plant. When a terrestrial plant captures CO<sub>2</sub> with a purity of more than 99.9%, the captured CO<sub>2</sub> can be used in a wide range of applications, including chemical processes to enhance production of fertilizer or methanol, general use such as dry ice for cooling, and enhanced oil recovery (EOR) to increase crude oil production.

(Note 3) "K" LINE Environmental Vision 2050, Blue Seas for the Future, which is formulated in 2015. Based on the revision in June 2020, our milestone target is set to [improve CO2 emission efficiency by 50% over 2008], which is surpassing the IMO target of a 40% improvement.

<https://www.kline.co.jp/en/csr/environment/management.html#002>



\* The design of the logo is from initials of Carbon Capture on the Ocean and represents capturing molecular of carbon dioxide inside.



Experts and crew in the CO2 capture plant



Lecture by the expert onboard