



## **Launch of onshore testing using seabed simulated ground for development of shallow methane hydrate harvesting technology**

**Tokyo, October 27, 2022** – MODEC, Inc. (“MODEC”, President & CEO: Takeshi Kanamori) has been participating in the elemental technology development related to the development of shallow methane hydrate harvesting technology conducted by the National Institute of Advanced Industrial Science and Technology (“AIST”) commissioned by the Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry (“METI”), and is developing harvesting technology using extensive vertical drilling method with disk-shaped, large diameter drill bits.

MODEC is pleased to announce that we have started onshore tests to confirm the drilling performance on a simulated soft mud ground several tens of meters below the seabed at the Okhotsk Regional Innovation Research Park (former site of the Kitami Racetrack) in Kitami City, Hokkaido, and have confirmed that the performance has reached a level that enables efficient harvest of methane hydrate in granular form.

Shallow methane hydrate exists as an icy solid consisting of crystallized methane gas and water in a low-temperature, high-pressure environment just below the seabed. Among Japan's Exclusive Economic Zone (EEZ), shallow methane hydrate is mainly found on the seabed under the Sea of Japan and is expected to be developed as 100% domestically produced resource in the future.

The extensive vertical drilling method developing by MODEC is a way to harvest shallow methane hydrate under the seabed using a large-diameter, disk-shaped drill bits. In order to increase the drilling capacity of the drill, it is necessary to conduct field tests and obtain design data, but it is not easy to conduct such field tests in seabed depths of 500m or more, where shallow methane hydrate exists.

To enable technical verification on land, MODEC has been working with Nihon University, Kitami Institute of Technology (“KIT”), and Hokkai-Gakuen University to develop a simulated ground (using polypropylene balls simulating granular methane hydrate and fluidized treated soil) assuming soft mud several tens of meters below the seabed with 20% content of shallow methane hydrate exists.

The onshore drilling test was conducted on October 20th, 2022, after confirming that the simulated ground had hardened and become strong sufficiently

The WIRTH-RC drilling rig provided by HMM (<https://hmmw.com/>), an industry-leading provider of subsea drilling technology services, was used for the drilling test and the performance was confirmed to be sufficient to efficiently harvesting granular methane hydrate in the soft mud.

The next drilling performance test is scheduled for February 2023 using large ice that simulates 100% content of shallow methane hydrate, and in December 2022, together with KIT, MODEC will start producing large 1-meter-thick ice block by the method of naturally layering ice at the test site.

Through these drilling performance tests, we will confirm that the drilling technology is applicable to the target areas for development of shallow methane hydrate, which are in various conditions of existence.

MODEC is the only company in Japan that provides total solutions related to floating facilities, including FPSOs (Floating Production, Storage & Offloading system).

MODEC aims to provide technologies for the manufacture and operation of offshore production facilities for methane hydrate, a submarine resource that lies in submarine deposits in the seas around Japan, by applying the technologies we have cultivated through the construction and operation of FPSOs.



Exterior view of drilling equipment

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The information contained in this news release is true and accurate at the time of publication; however, it may be subject to change without prior notice.