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Flow Test from Methane Hydrate Layers Ends

Japan Oil, Gas and Metals National Corporation (“JOGMEC”, Headquarter: Minato-ku, Tokyo, President: Hirobumi Kawano), which has been conducting a flow test from March 12 in the first offshore production test off the coasts of Atsumi and Shima peninsulas, ended the flow test on March 18, 2013.

The test equipments will be retrieved from now on.

Methane hydrate (*1) receives attention as one of the unconventional gas resources in the future. During the period from FY2001 to FY2008, which is Phase 1 of the “Japan’s Methane Hydrate R&D Program” (*2) (Program), seismic surveys and exploitation drillings were conducted at the eastern Nankai trough, off the coast from Shizuoka-pref. to Wakayama-pref., as the model area, where a considerable amount of methane hydrate deposits is confirmed (*3).

In Phase 2 of the Program starting from FY2009, aiming to develop a technology to extract natural gas through dissociation of methane hydrate, this is the first offshore test ever conducted (*4).

The first offshore production test is planned over a span of two years. In February and March last year, the preparatory works including drilling a production well and two monitoring wells were conducted. From June to July, the pressured core samples were acquired from methane hydrate layers. In this operation, a flow test through dissociation of methane hydrate was begun on March 12 after the preparatory works including drilling and installing equipments.

JOGMEC has been conducting gas production until now. However, it ended the flow test today on March 18 since changes in well situation, including tentative malfunction of the pump to draw water for depressurization and simultaneous increase in sand production, have been seen and a rough weather was forecasted.

Although the detailed analysis will be conducted from now on, JOGMEC has obtained necessary data for promoting future research and development of methane hydrate until now including gas production and its continuous production from methane hydrate layers under the sea by depressurization method, confirmation of indications that dissociation of methane hydrate has reached to monitoring wells which locate approximately 20m from the production well, and so on.

<Outline of First Offshore Production Test>

- Duration: from February 2012 until August 2013 including preparatory drilling, flow test, well abandonment
- Operation Site: Daini Atsumi Knoll off the coasts of Atsumi and Shima peninsulas
- Project Owner: Ministry of Economy, Trade and Industry (METI)
- Relating Parties: JOGMEC (Implementing Body), JAPEX (Operator)
- Operating Vessel: Deep Sea Drilling Vessel "Chikyu"
- Progress
 - Preparatory drilling started: February 15, 2012
 - Came back to Shimizu Port: March 26, 2012
 - Operation to acquire pressured core samples: from June 29 to July 7, 2012
 - Started the operation at the test site: January 28, 2013
 - Started the flow test and confirmed gas production: March 12, 2013
 - Ended the flow test: March 18, 2013
- Schedule
 - Retrieving test equipments: until end of March
 - Retrieving remained equipments from the site: August, 2013

Although the first offshore production test is not a commercial production and is an experimental operation as an activity in research, it will be a big progress in research and development of methane hydrate as a resource since precious data including dissociation behavior of methane hydrate under the sea floor, impact to the surrounding environment, and so on, would be obtained once this test ends in success. Based on accomplishment of the production test, it is also planned to proceed with the second offshore production test scheduled in Phase 2 and establishing the technological platform toward future commercial production in Phase 3 which is scheduled from FY2016 until FY2018.

(*1) Methane hydrate is an ice like material which methane molecules and water molecules combine and form under the condition of high pressure and low temperature. It is expected that the methane gas dissociated and produced will be used as an energy resource. It is distributed under a permafrost area and seafloor of the depth of more than 500m.

(*2) METI published the Program in 2001. In Phase 2 of the Program, Research Consortium for Methane Hydrate Resources in Japan (MH21, Project Leader: Masuda Yoshihiro, Associate Professor, The University of Tokyo) is implementing the Program as a consortium formed by JOGMEC and National Institute of Advanced Industrial Science and Technology (AIST).

(*3)Methane hydrate in place, the amount equivalent to approximately 40tcf or approximately 1.1trillion m³of methane, is confirmed in the model sea area of eastern Nankai trough which is equivalent to around eleven years of the amount of LNG imported into Japan. Methane hydrate concentrated zones, the zones where methane hydrate is concentrated and which are expected to be possible targets for future resource development, occupy one sixth of the total area and contain the amount of methane hydrate equivalent to approximately 20tcf of methane gas, which is a half of the total amount of methane hydrate in place. However, usable resource amount is depending on the amount to be practically recovered.

(*4) Japan, a front runner in the world, conducted two times of onshore production tests in Canada as international

joint studies. The first test conducted in FY 2001 tested the heating method or the hot water circulation method which dissociates methane hydrate by raising temperature. The second test from FY2007 to FY2008 tested the depressurization method which dissociates methane hydrate by decreasing temperature. As the result, it was proven that the depressurization method is able to dissociate methane hydrate more efficiently. Therefore, it is planned to apply the depressurization method to this offshore production test as well.