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Toshiba Energy Systems & Solutions Corporation
International Research Institute for Nuclear Decommissioning

New Toshiba and IRID Device to Investigate Interior of Primary Containment Vessel at Fukushima Daiichi Unit 2

・*Investigation with suspended pan-tilt camera attached to telescopic guiding pipe.*
・*Expected to investigate interior of Unit 2 primary containment vessel from latter half of January to February.*

Kawasaki, Japan -Toshiba Energy Systems & Solutions Corporation (Toshiba ESS) and the International Research Institute for Nuclear Decommissioning (IRID) have developed a suspended pan-tilt camera attached to telescopic guiding pipe that will enter and investigate the interior of the damaged primary containment vessel (PCV) of Fukushima Daiichi Nuclear Power Plant Unit 2. The device will be deployed from latter half of January to February 2018.

A February 2017 investigation by Tokyo Electric Power Company Holdings (TEPCO) found that part of the grating of the platform inside its pedestal has been dropped. Toshiba ESS and IRID plan to investigate the condition under the platform inside the primary containment vessel with the device developed this time.

The device developed by Toshiba ESS and IRID is small and radiation hardened, and will be introduced into the PCV via a pipe approximately 12cm in diameter. It mounts a 2kg-camera module with a pan-tilt camera that can shoot 120 degrees along its vertical direction and 360 degrees horizontally, a bird's eye view camera and a cable transfer mechanism, and is attached to a telescopic mechanism extendible by up to 5m. The device also deploys a mechanism that adjusts the distance between the pan-tilt camera and light sources to ensure visibility inside the PCV, which is dark and full of steam.

“We are doing all we can to contribute to the investigation of the interior of the Fukushima reactors,” said Goro Yanase, General Manager of Toshiba ESS’s Nuclear Energy Systems & Services Div. “In this case, we have had to meet the challenges of limited access and a highly radioactive environment. Working with IRID, we have succeeded in developing a small device with high level radiation resistance, and by deploying it we expect to get more information for advance of decommissioning.”

Naoaki Okuzumi, Senior Manager of IRID's R&D Strategy Planning Department said "We will continue to develop technologies that contribute to the decommissioning of the plant."

Image of the device

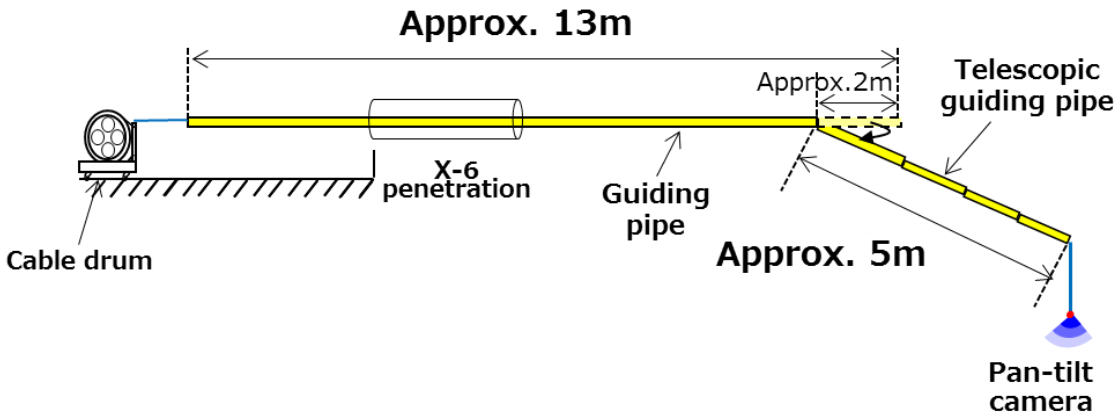


Image of the camera module

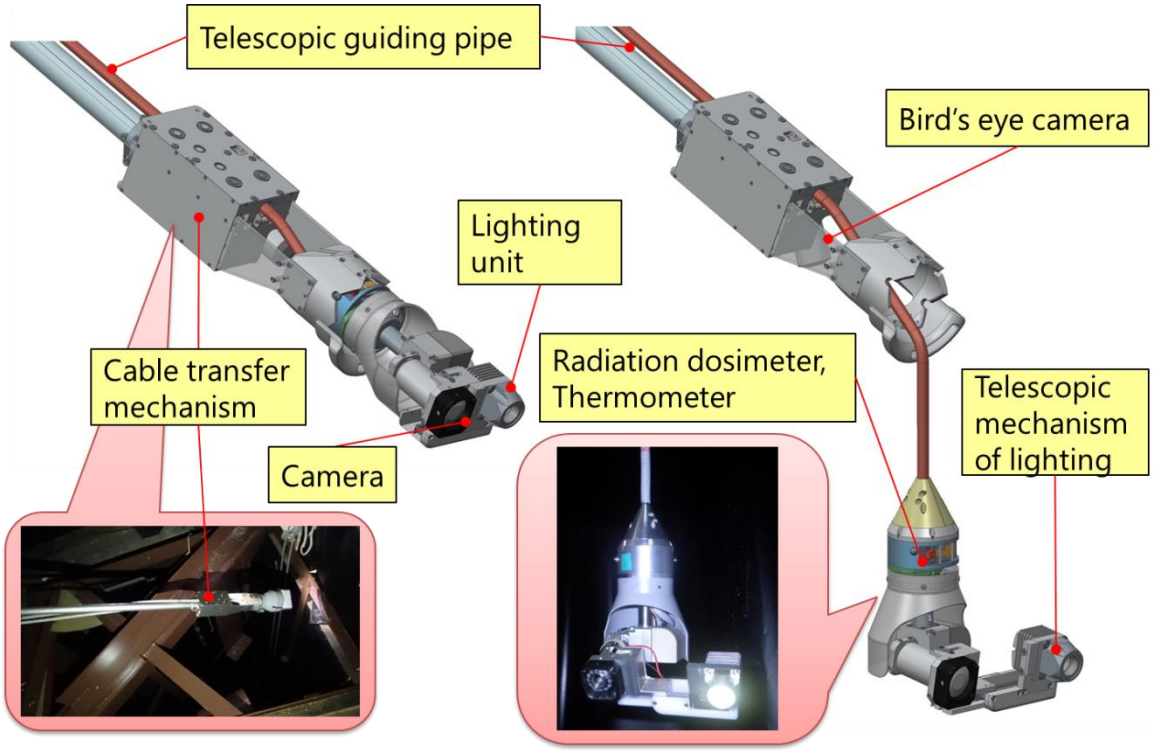
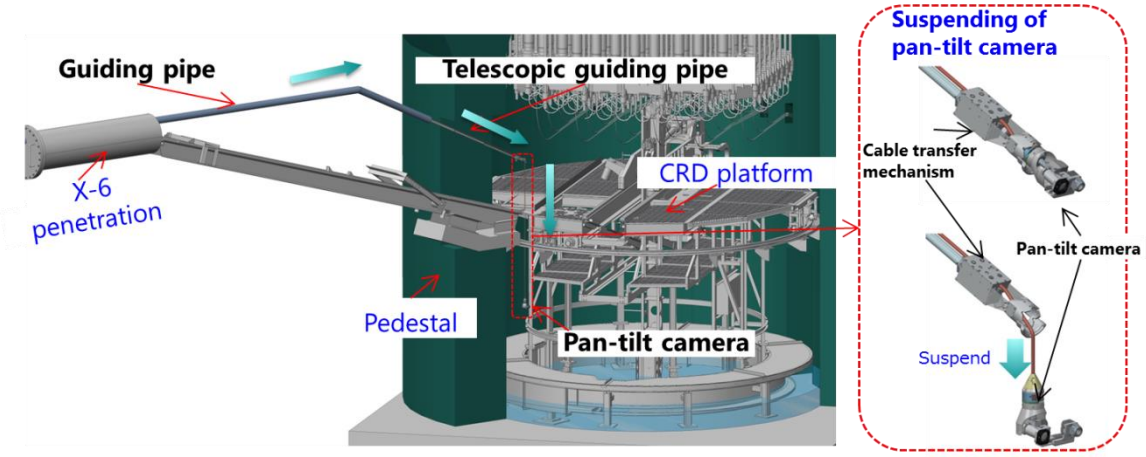


Image of the research scope



Overview of the device

External dimensions	Diameter: Approx. 11cm Guiding pipe length: Approx. 13m Telescopic guiding pipe length : Approx. max. 5m
Dimensions/Weight	Approx.2 kg　Approx.40cm (camera module)
Features	Two cameras (pan-tilt and bird’s eye camera, Lighting unit (LED), Cable transfer mechanism, Radiation dosimeter, Thermometer
Power supply	Wire-supplied
Radiation resistance	Approx. 1,000Gy (gray)