Unit 2 PCV Internal Investigation and Status of Preparations for the Trial Removal of Fuel Debris

December 24, 2020

International Research Institute for Nuclear Decommissioning
Tokyo Electric Power Company Holdings, Inc.

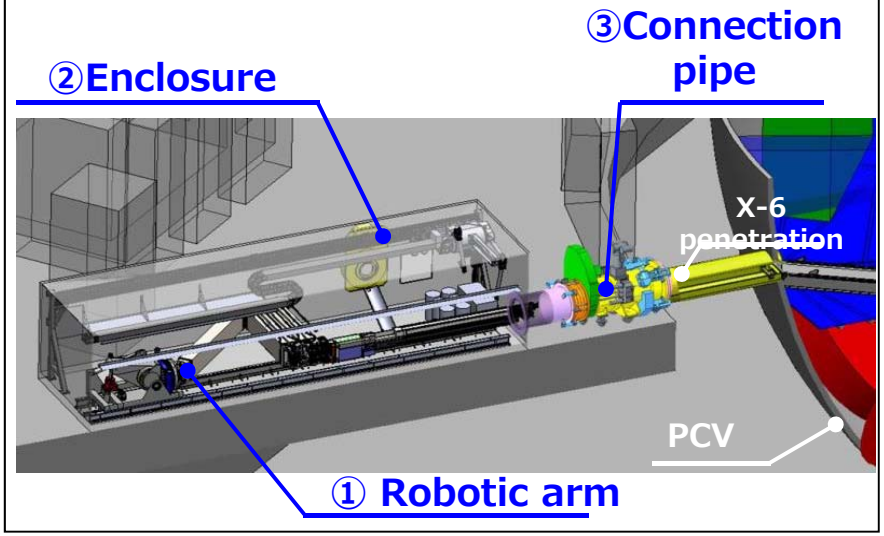
Unit 2 Overview on Equipment for the Trial Removal of Fuel Debris

- The fuel debris will be accessed with **a robotic arm and powdery fuel debris inside the PCV will be removed (approx. 1g) several times using metal brushes and a vacuum recovery container.**
- **IRID (Mitsubishi Heavy Industries) and VNS ("OTL" ※1)** are currently developing the robotic arm in the UK-※2.

< Overview equipment for the trial removal of fuel debris>

Equipment for the trial removal of fuel debris is comprised of three types of devices.

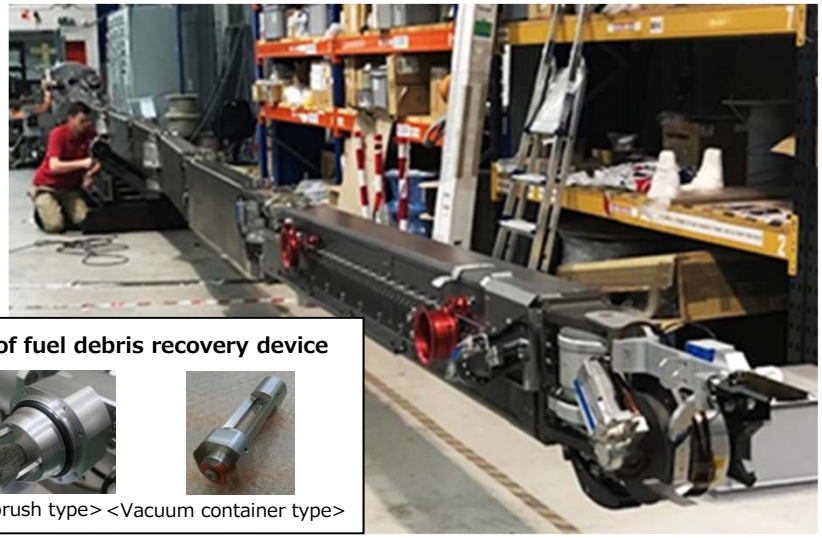
1. Robotic arm
2. Enclosure (used to store the robotic arm and contain radioactive substances)
3. Connection Pipe (connects the enclosure to the X-6 penetration of the PCV)



<Robotic Arm>

- Robotic arm for removing fuel debris. Fuel debris recovery devices can be attached to the end.※3
- **Made from high tensile stainless steel** that won't bend even when the arm is extending.

※3 : Specs: L: Approx. 22m, H: Approx. 40cm x W: Approx. 25cm
Weight: Approx. 4.6t, Radiation resistance: Approx. 1MGy (accumulated)



End of fuel debris recovery device

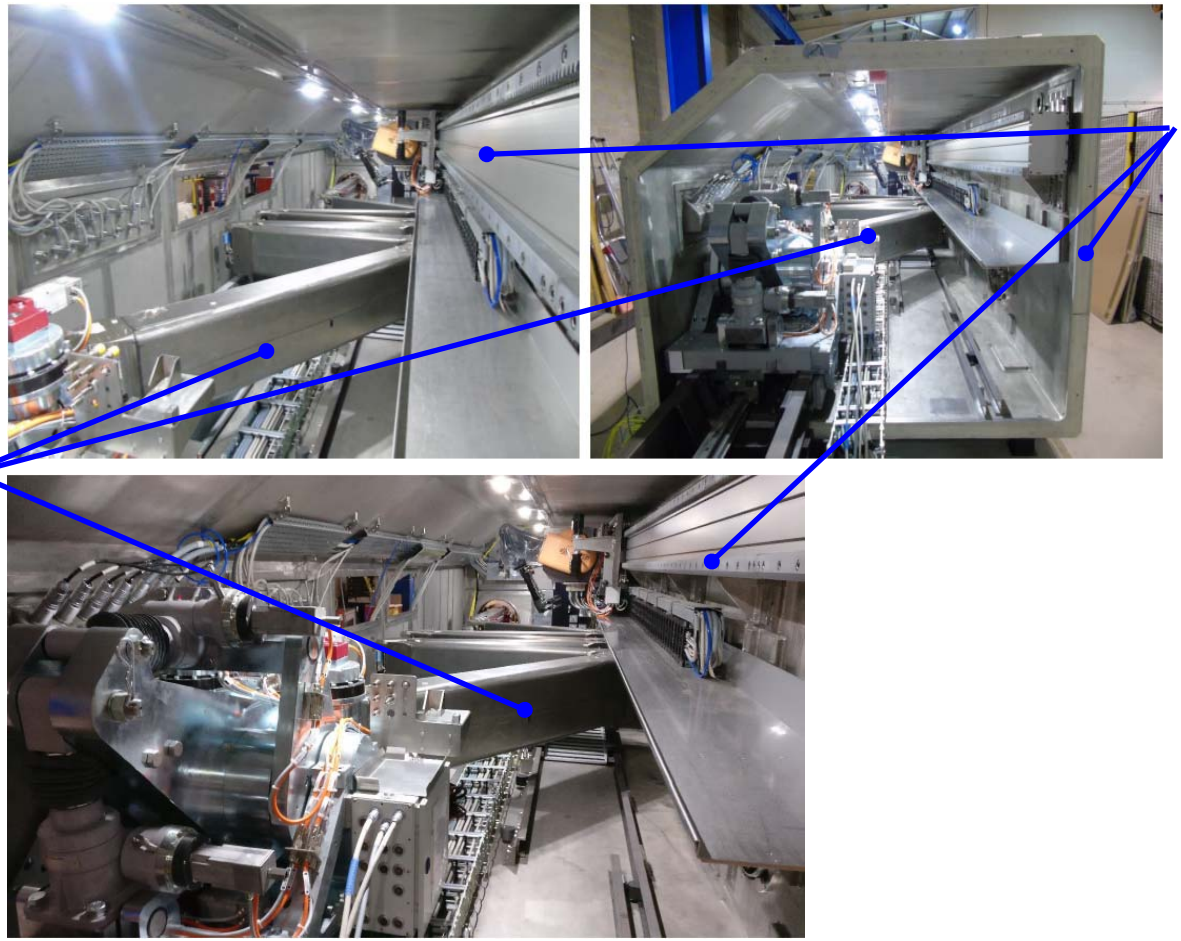
<Metal brush type>

<Vacuum container type>

※1 : Abbreviation for Oxford Technologies Ltd. Name was changed to Veolia Nuclear Solutions (UK) Limited in 2018 (VNS(UK)) in conjunction with a merger.
※2 : The International Research Institute for Nuclear Decommissioning (IRID) has posted the following video on the "status of UK-Japan joint development of a robotic arm for accessing fuel debris" https://youtu.be/8LhDa5z51GQ

- Currently **the robotic arm is being incorporated into the enclosure and operation tests are being conducted**

<Robotic arm + Enclosure>



Schedule

- Due to the Covid-19 pandemic, the robotic arm being developed in the UK will not be able to be transported to Japan in January of next year as originally planned.
- Since further delays would result if work was to continue in the UK, the UK schedule will be cut short and performance confirmation tests that were scheduled to be conducted in the UK will be conducted in Japan.
- Through these efforts we expect to be able to minimize future delays to approximately one year.