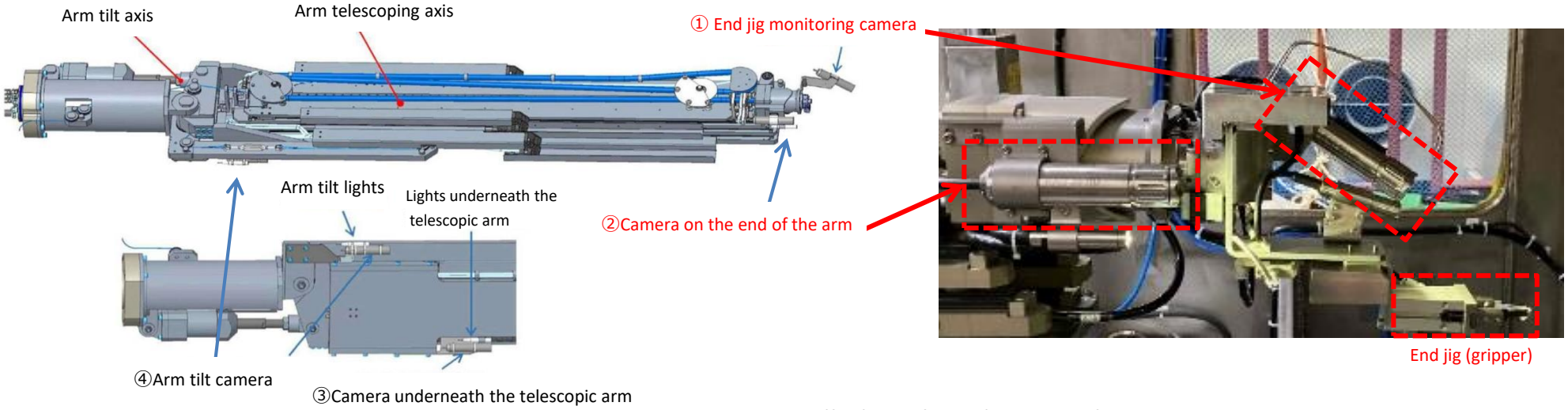
October 7, 2024
Tokyo Electric Power Company Holdings, Inc.
Fukushima Daiichi Decontamination & Decommissioning Engineering Company

Fukushima Daiichi Nuclear Power Station
Replacing the Cameras for the Unit 2 Fuel Debris Trial Retrieval

- On September 17, as a preparation to grasp fuel debris, conditions inside the primary containment vessel was being checked and a functions check of the telescopic device was being performed. As a result, it was detected that footage from the cameras on the end of the telescopic device (① End jig monitoring camera, ② Camera on the end of the arm) was not being sent properly to the monitors in the remote operations room for some reason.
- In order to investigate the cause of this incident, we inspected the camera cables, connection terminals, the outside of the video converters and their signals, and measured insulation resistance. One of the probable causes is that the high radiation may have caused the camera to temporarily shut down due to lack of voltage required to operate the camera. Therefore, we attempted to recover the cameras by maintaining their switch “on” and “off” in the enclosure, where the radiation is relatively low compared to the primary containment vessel. (However, the camera signals are still not being sent properly.)
- On October 4, we sent voltage higher than the usual to the cameras to check and examine the footage to see if there was any change in the cameras. (Again, no changes were observed in the status of the camera footage.)
- Going forward, we are reviewing tasks and the schedule, and making preparations to replace the cameras, then we will replace the cameras after confirming their feasibility.



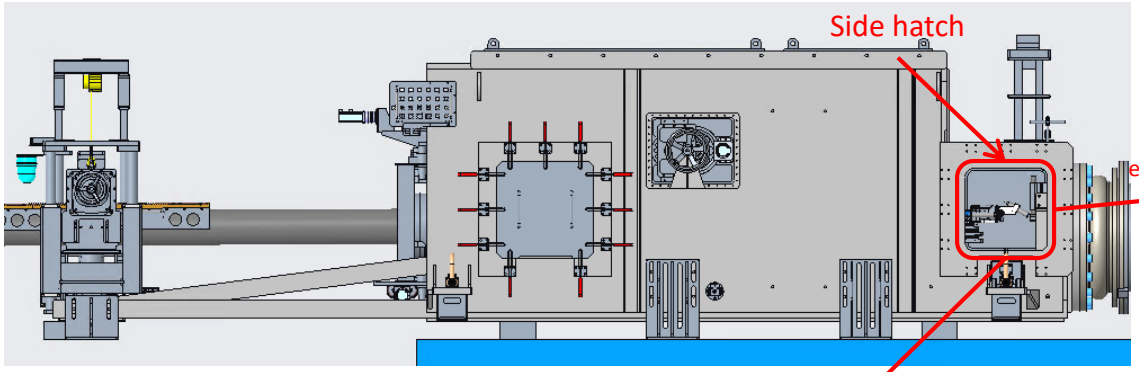
Cameras installed on the telescopic device

Examinations regarding replacement of the cameras

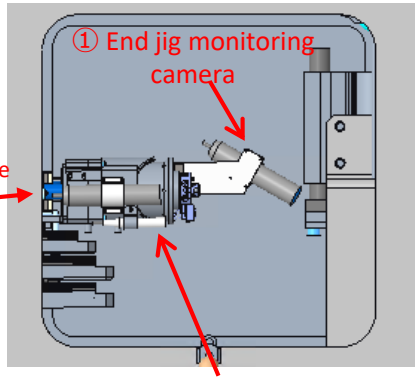
■ In consideration of workability and worker exposure, we are deliberating replacing the cameras by accessing them through the side hatch on the enclosure and are examining whether replacing the cameras through the side hatch is feasible.

<Examinations>

- A mockup of the enclosure is being used to examine the accessibility and feasibility of camera replacement both within and outside the enclosure
- We are checking if the cameras can be replaced wearing the same personal protective equipment (PPE) that is needed in the field (cotton gloves and three layers of rubber gloves)

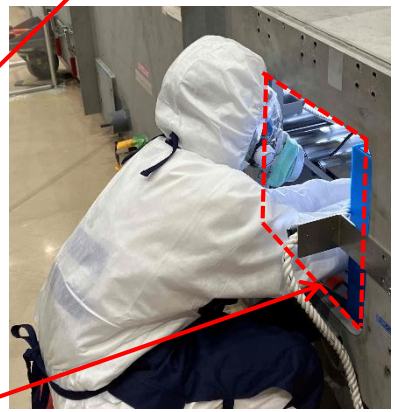


enlarge



A mockup of the enclosure
(Mitsubishi Heavy Industry Kobe Factory)

Side hatch
(same dimensions as on the actual enclosure)

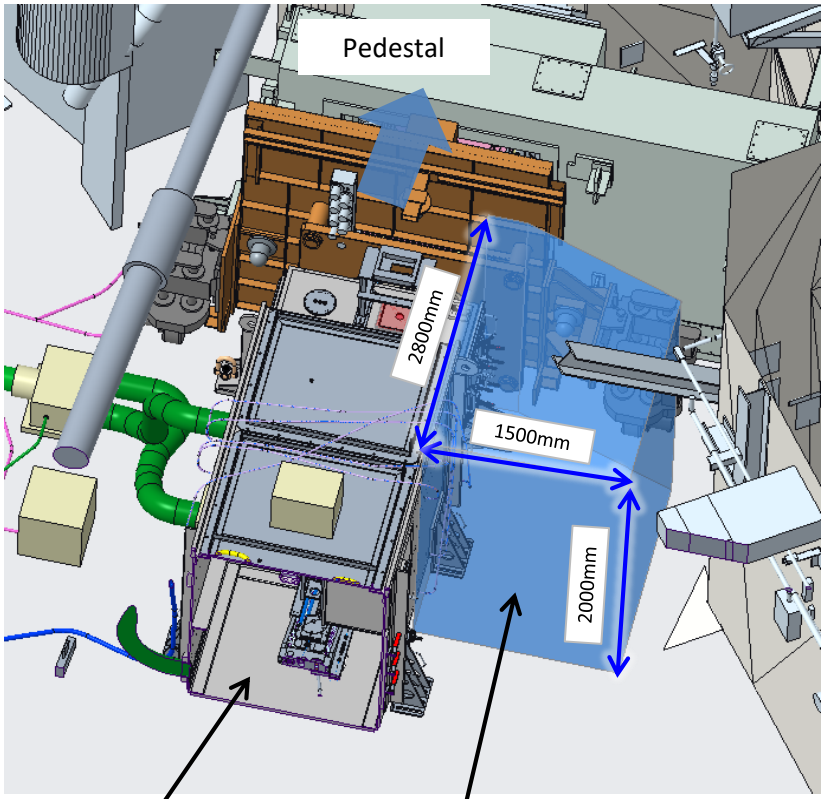


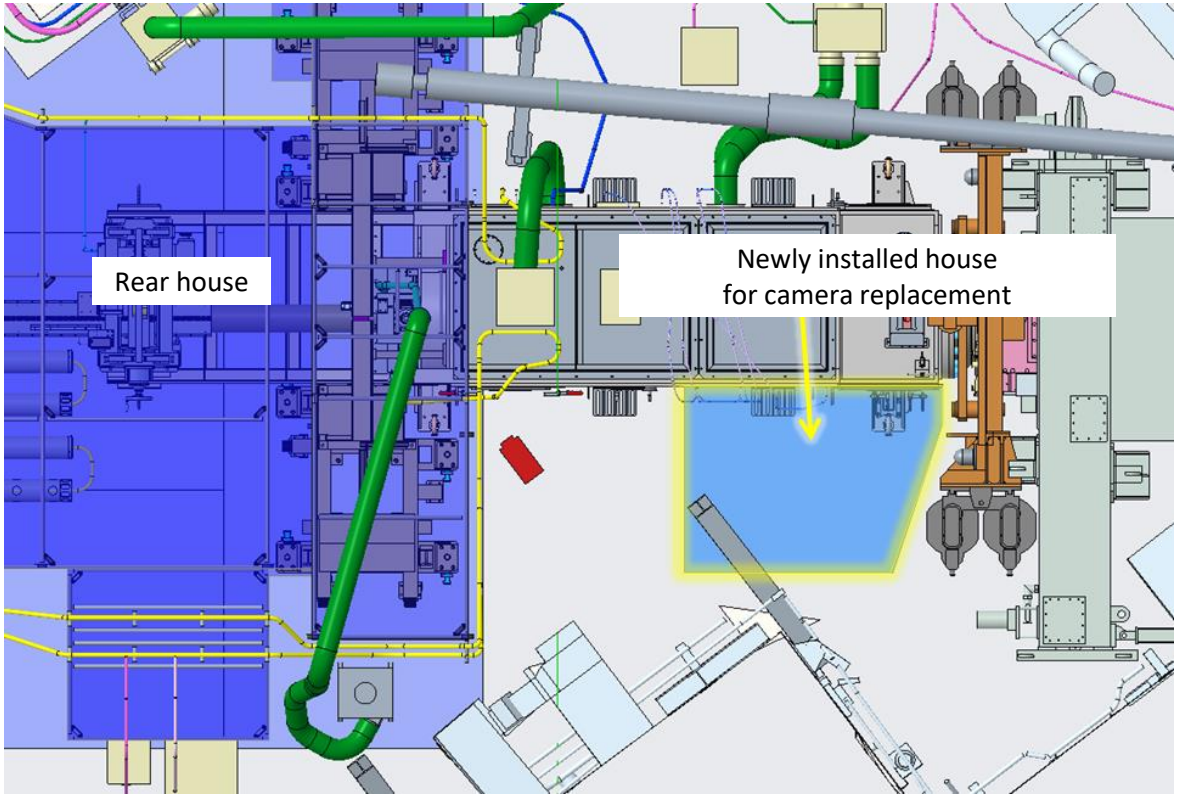
Reviewing accessibility
(Naraha Center for Remote Control Technology Development)

PPE worn during camera replacement
(cotton gloves and three layers of rubber gloves)
*Leather globes are also used when connecting cables.

Installing house for camera replacement

- To prevent the spread of contamination, we are deliberating installing a house on the side of the enclosure for to be used during camera replacement
- Lights and work tables will be set up inside the house to improve the workability for workers when replacing the cameras

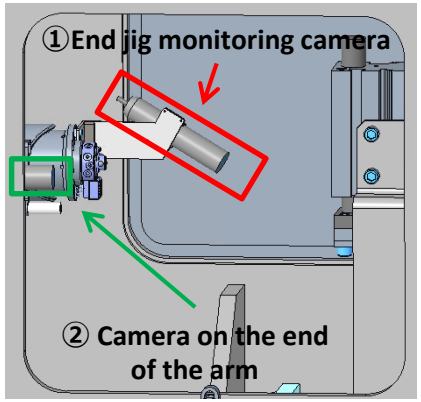




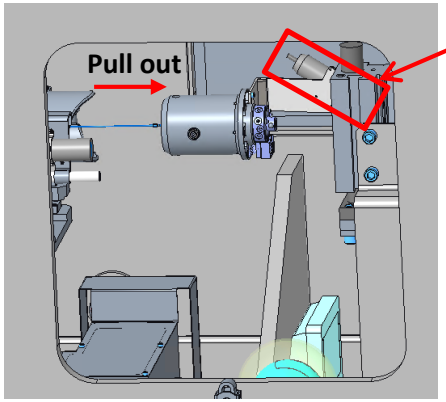
Installing a house on the side of the enclosure for camera replacement

Camera replacement procedure

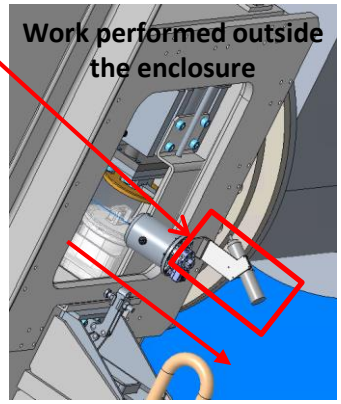
■ Since the “① end jig monitoring camera” can be removed from inside the enclosure, this it will be conducted outside the enclosure. “② camera on the end of the arm” is fixed to the arm, therefore it will take place inside the enclosure.



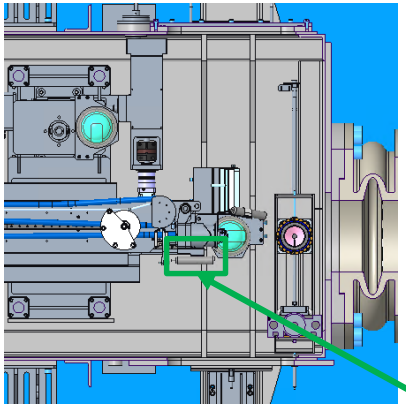
[① End jig monitoring camera]



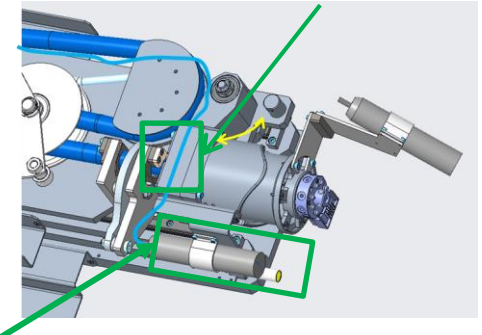
①End jig monitoring camera



[② Camera on end of the arm]



Location where cable is to be cut



Work performed inside the enclosure

Camera on the end of the arm

After the cables are connected, the cameras will be re-secured in its original position