

**Demonstration Test of the Exterior Surface Survey Equipment
for the Lower Part of the Suppression Chamber under Development
at the Research and Development of “Development of Survey/Repair
(Water stoppage) Technologies for Watering the Containment Vessel”**

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Tokyo Electric Power Company



東京電力

IRID

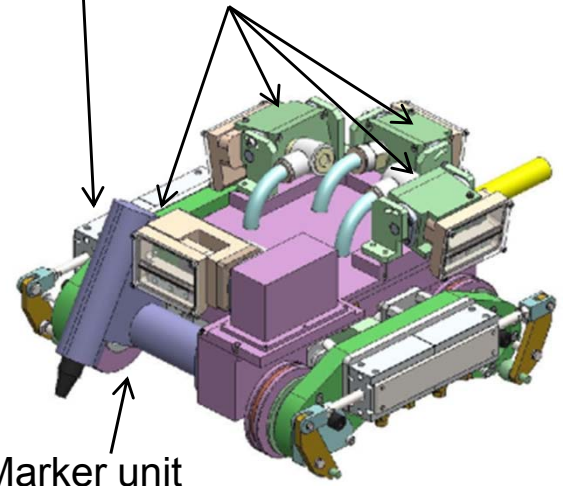
1. Overview

Regarding Exterior Surface Survey Equipment for the Lower Part of Suppression Chamber (“S/C”) under Development at the Research and Development of “Development of Survey/Repair (Water stoppage) Technologies for Watering the Containment Vessel”, verification test using the actual equipment is to be carried out at Unit 2 to verify the applicability of the equipment.

Magnet wheel (four wheels)

Front/rear cameras
Side cameras (right/left)

Marker unit



Exterior surface survey equipment for the lower part of S/C

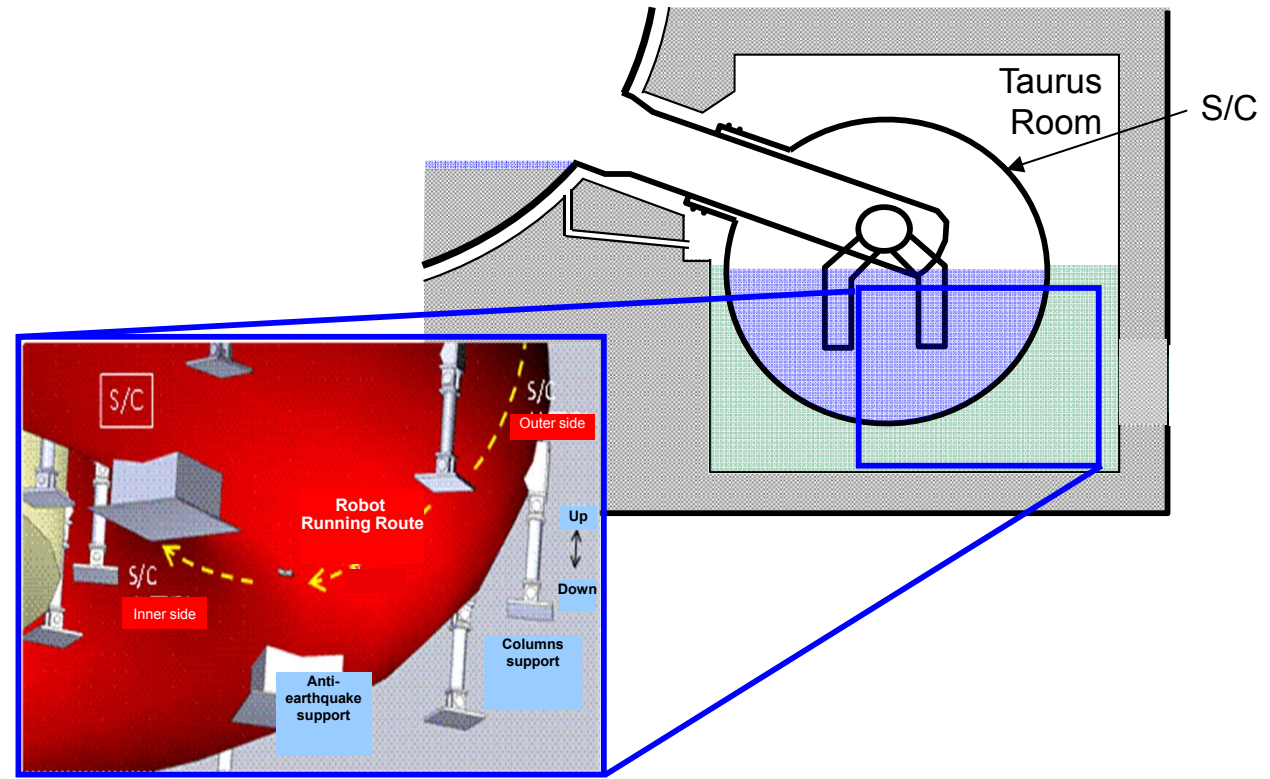
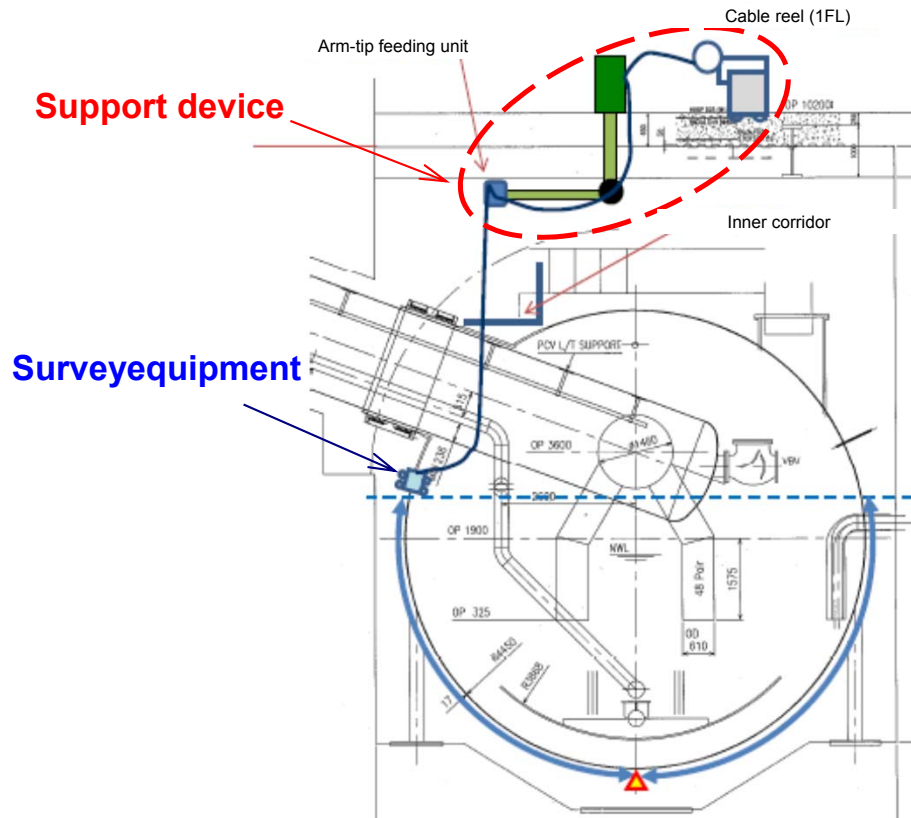


Image of exterior Surface investigation of the lower part of S/C

2. Demonstration details

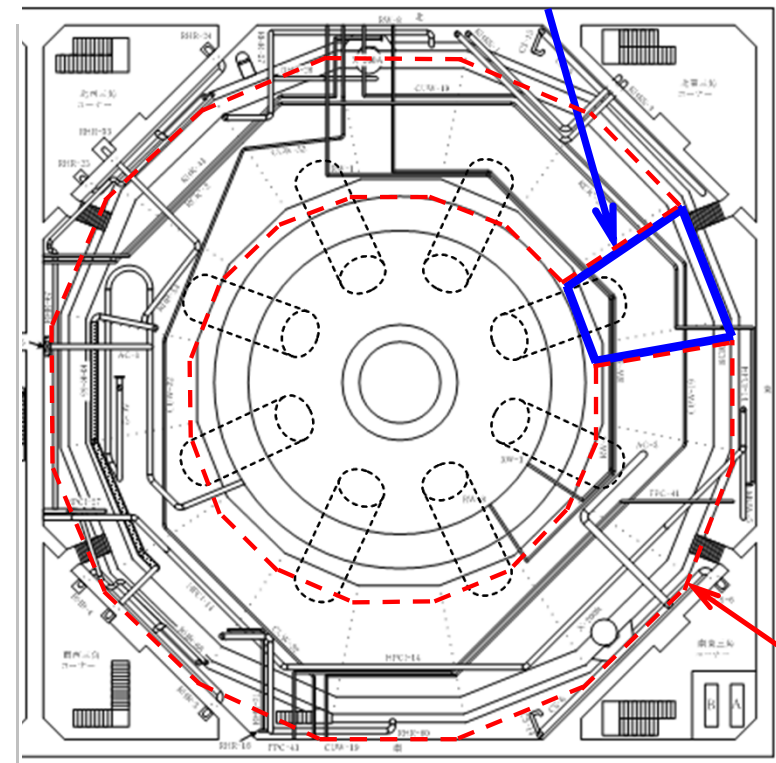
It is to verify whether the equipment is capable of the followings through the demonstration.

- Be able to Identify any opening (greater than $\Phi 50$ mm) which hinders water stoppage using water sealing materials in the lower part of S/C submerged in the retained water in the Taurus room (The specification must be designed capable of identifying at least $\Phi 30$ mm opening),
- Be able to be attached to S/C shell with the assistance of the support device, and
- Be able to scan the submerged part and acquire images to identify any existing openings.



Demonstration image with the actual equipment

S/C subject to the verification with the actual equipment (Retained water submerged part in the Taurus room)

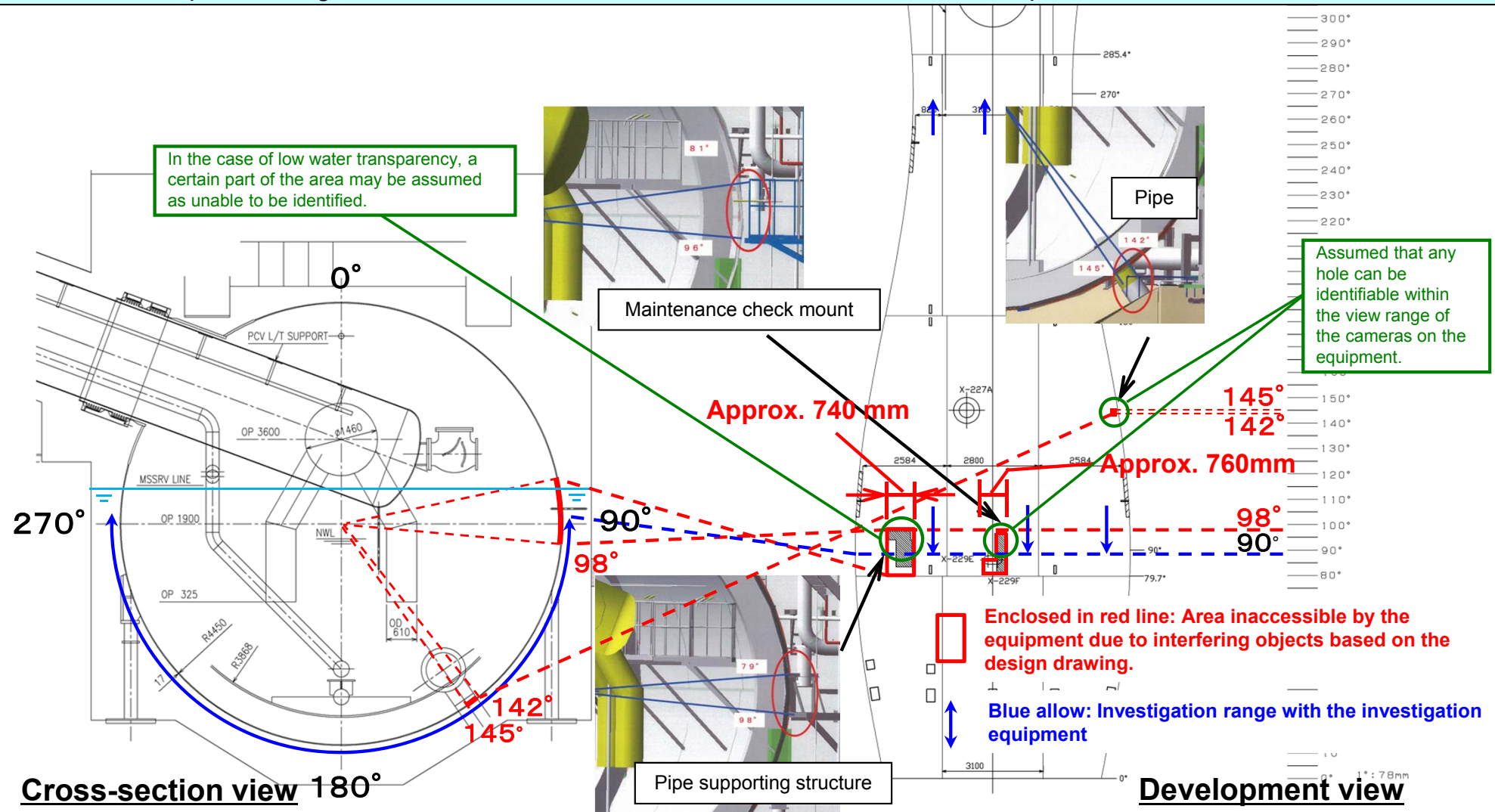


Parts to be verified

Enclosed in red line: Planned to be investigated in the second term of FY2014 as a part of survey/ construction.

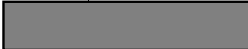



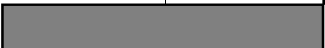
3. Area to be surveyed

For the area between 90 and 270 degrees in the submerged part (range where the maximum amount of water sealing material is injected to stop watering), a full scan is to be conducted. However, some parts may be found hard to be surveyed due to interfering objects unpredictable in advance or no clear vision obtained because of low transparency in retained water by the angle where the existing interfering objects and the equipment are located. If such case occurred, any existence of a hole(s) unable to be sealed will be judged based on the investigation results of the parts having a similar structure or a deformed status around the relevant part.

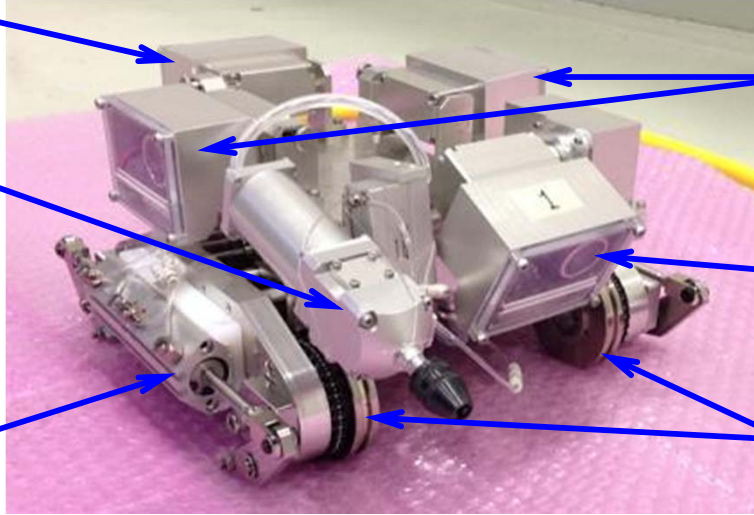


4. Demonstration test schedule

Following the demonstration test of Taurus room's wall surface currently being undertaken, a demonstration test of the exterior surface survey equipment for the lower part of S/C is scheduled to be conducted.

	July			August				September	
Research and Development - Demonstration test of exterior surface survey equipment for the lower part of S/C		7/21 – 30, Preparatory works at outside the reactor building 		7/31 – 8/8, Preparatory works at inside the reactor building 		8/18, Equipment operational check 	8/19 – 9/4, Demonstration test 		
[Reference] Research and Development - Demonstration test of Taurus room's wall surface		7/16 – 30, Demonstration test (incl. cleaning-up) 							

【Reference】 Survey equipment specification

Exterior Surface Survey Equipment for the Lower Part of S/C	
Exterior	
Size	W280mm × L305mm × H140mm
Weight	Approx. 10 kg
Adsorption method	Magnet attraction wheel type adsorption method (four wheels)
Driving speed	10 ~ 50 mm/sec
Cable	Length: 50 m/ Outer diameter:φ15 mm Power source, Control, Transmission (LAN), and air tube.
Survey tools*	Tilt camera (with light loaded): 1 camera (1 in front) Fixed camera (with light loaded): 3 cameras (3 in total right and left, and in rear)

* [Reason for the adoption of survey method using camera] For identifying the existence of any hole(s) with larger than ϕ 50 mm in order to judge the availability of injecting water sealing material into S/C, a full inspection on the exterior surface of S/C was found to be the most reliable, by which, a survey using camera was selected as the best method for this case.

[Camera development specification] ϕ 30 mm hole(s) is detectable in the muddy water.