Removal of Obstacles Including Debris, etc., at the Southwest Side on the First Floor of Unit 3 Reactor Building at Fukushima Daiichi Nuclear Power Station

August 26, 2013
Tokyo Electric Power Company

1. Purpose, Duration, Robot

■ Debris removal with robots in the Reactor Building at the southwest area of the first floor of Unit 3 was completed on August 23.

■ Purpose of the work

- With regard to Unit 3, work inside the Unit 3 such as investigation for leakage of PCV are scheduled.
- Due to high ambient dose in the Reactor Building, it is necessary to lower dose in order to perform works inside the Building in future.
- Debris such as concrete waste and ducts are scattering in the Reactor Building. Debris removal is inevitable in order to carry decontamination apparatuses into the Building.

As a part of lowering dose and ensuring a route for decontamination apparatuses and investigation inside PCV, we will perform obstacle (such as debris) removal with unmanned heavy equipments, before starting decontamination works.

■ Duration

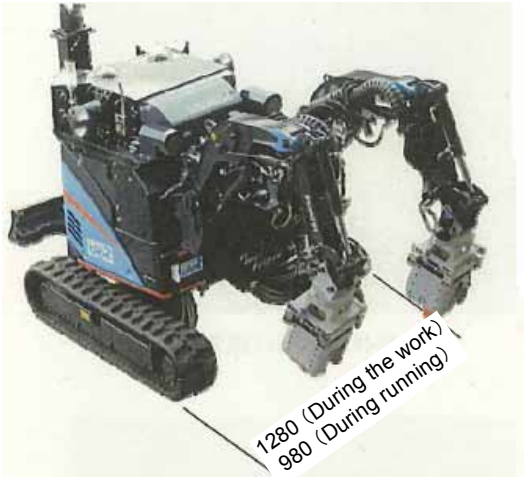
From July 25 to August 23 (17 days)

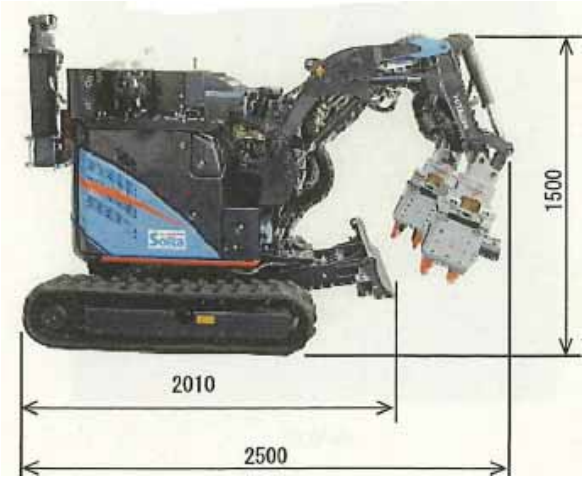
■ Robots

- ASTACO-SoRa
- Packbot (for monitoring)

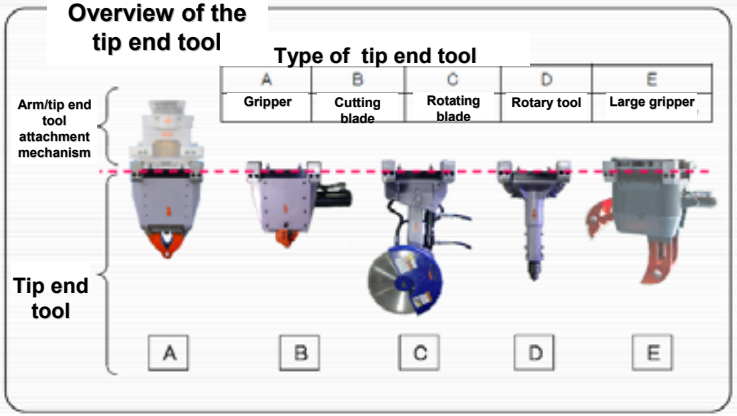
2. Specification of ASTACO-SoRa

Unmanned heavy equipment with two arms



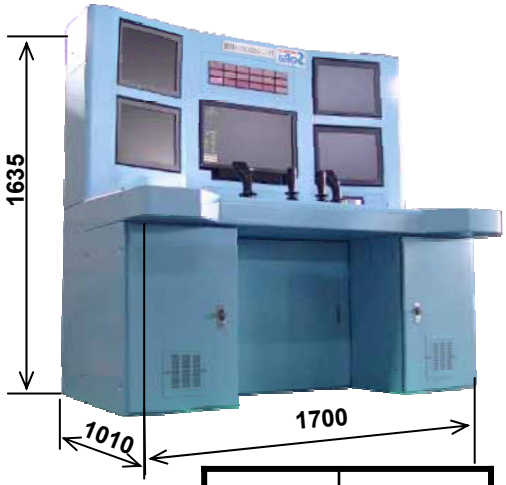


Overview of the tip end tool



Weight	2.5t
Lifting load (using both arms)	300kg
Lifting load (using a single arm)	150kg
Workable height	2500mm

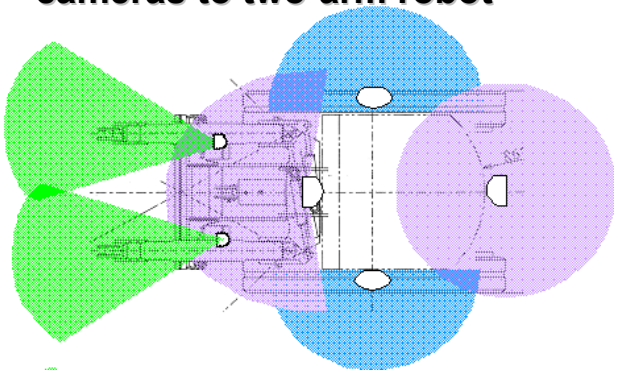
Dimension of control board

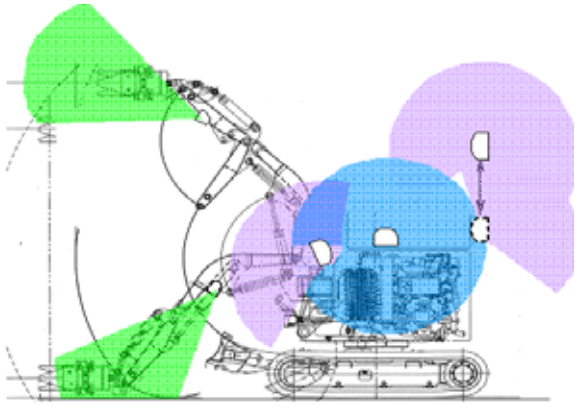


Weight	255kg

・Operation location
Telecommunication equipment room on the ground floor of the Main Anti-earthquake building at Fukushima Daiichi NPS.

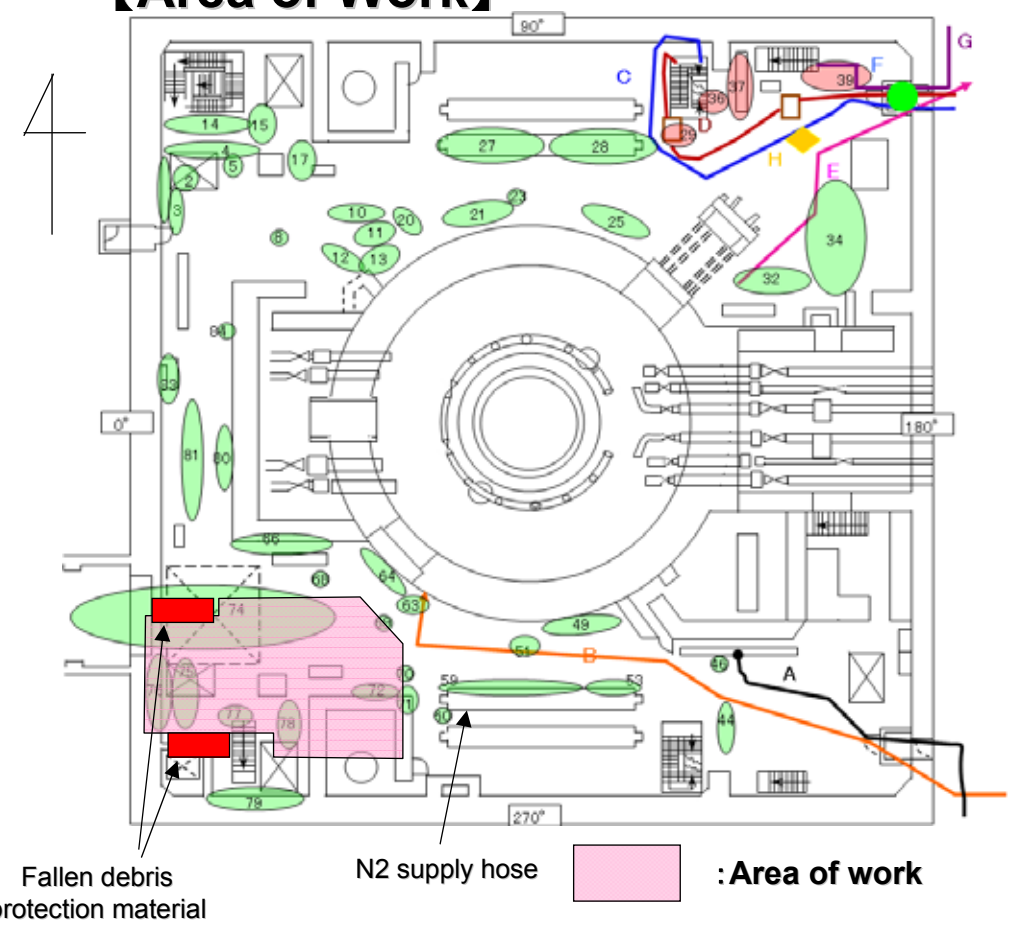
Installation location of cameras to two-arm robot





3. The Current Situation (Area, Removed Objects/ Total Dose) and the Schedule in Future

【Area of Work】



Area of work at the first floor in Unit 3

■Removed objects

Removed objects amount to 8 packs (0.5-ton per pack), including the followings.

- ・Cable
- ・Electricity conduit
- ・Debris (concrete pieces etc.)
- ・Cone
- ・Baluster (metal)
- ・Metal plate
- ・Rectangle timber
- ・Structural steel etc.

■Maximum surface dose of the removed objects

23.0mSv/h(measured on the surface of 0.5-ton packs)

They contain concrete pieces, metal pieces, ladder, sign boards, ropes, jacks, rubber high boots.

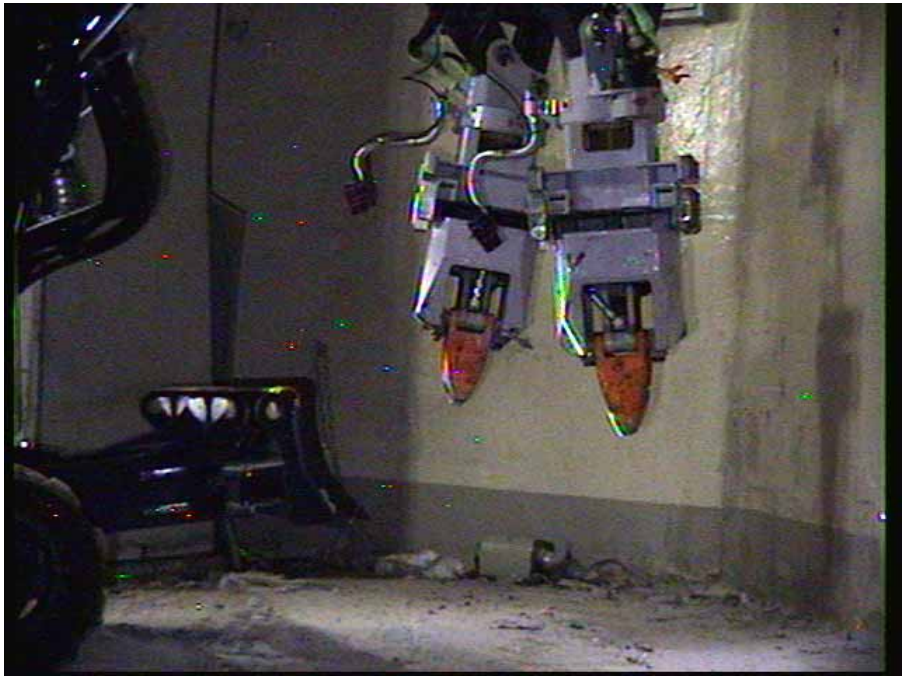
※In order to remove debris at the other area other than the southwest area, removal of debris protection material (requiring large-scale equipments) and transfer of the N2 supply hose are necessary, in order to remove debris.

■Schedule in future: Debris removal in Unit 3 will be temporarily suspended, and debris removal in Unit 1 will be performed. Meanwhile, debris removal (protection material of fallen debris in Unit 3) will be performed and the N2 supply hoses will be transferred.

4. Photos to Compare Before and After of the Removal Work (1)

[Removal of a rack with caster]

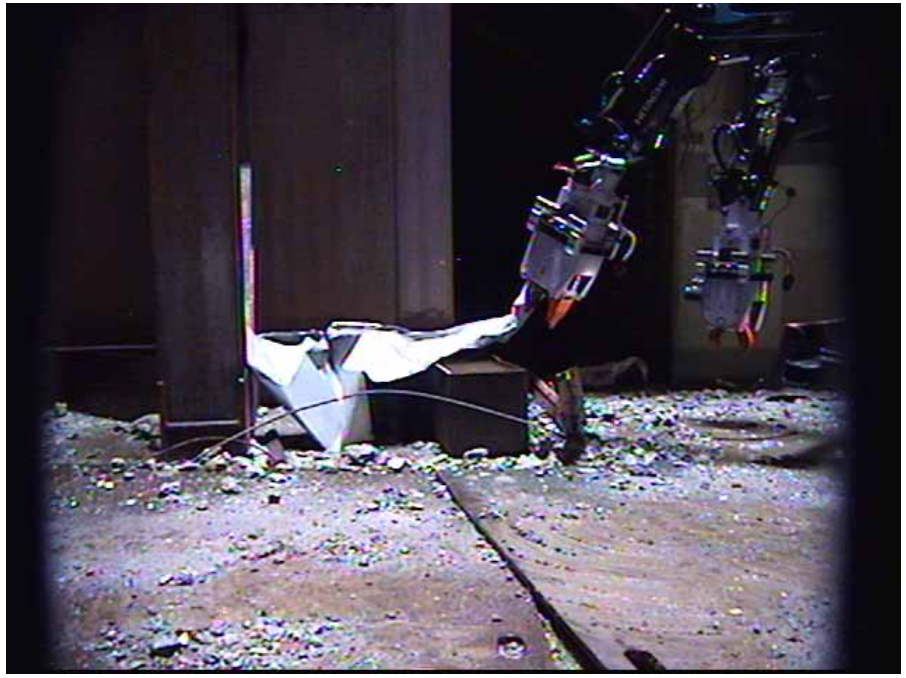
Before removal



After removal

4. Photos to Compare Before and After of the Removal Work (2)

[Removal of steel plate]



Before removal

After removal