

**“Development of  
Remote Controllable Decontamination Technology  
for Reactor Buildings”  
Investigation of Contamination Status in  
Upper Stairs of Reactor Buildings of Units 1 to 3  
(Investigation of Dose Rate with Gamma Camera)**

**April 28, 2014  
Tokyo Electric Power Company**



**IRID**

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This document uses the outcomes of International Research Institute for Nuclear Decommissioning (IRID).

# 1. Purpose and Overview of Investigation of Upper Stairs

## ■ Purpose and Overview

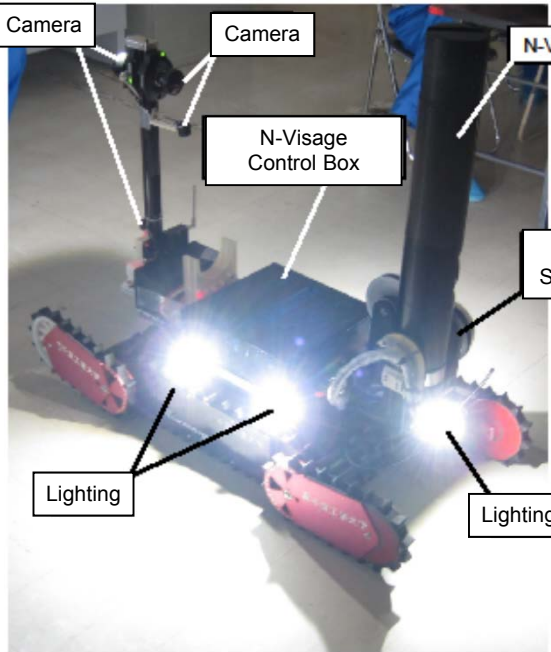
Investigate the dose rate and take images using the gamma cameras (N-Visage) in the 2<sup>nd</sup> and 3<sup>rd</sup> floors of the reactor buildings of Units 1 to 3. Confirm whether to have any places of higher dose rate (“hot” spots) to reflect its result to consideration of decontamination, shielding and removal.

## ■ Overview of Investigation Device

- Investigation should be conducted by remote control using Rosemary with gamma cameras and Sakura\* with dosimeter (silicon semiconductor sensor).

\* Movable compact robot developed by NEDO (New Energy and Industrial Technology Development Organization) in "Research and Development Project for an Unmanned Disaster Response System")

- Rosemary and Sakura should be remote-controlled from the Main Anti-Earthquake Building. The wired communication is used for Sakura and the wireless communication for Rosemary via Sakura.




**Rosemary**  
(Developed by Chiba Institute of Technology)

**Specification of Sakura**

- Size : 390mm x 500mm (Width x Height)
- Weight : Approx. 35kg
- Dosimeter: 2 dosimeters (Height: 50mm, 1500mm)
- Camera : 4 cameras
- LED light : 4 lights
- Communication: Wired communication (VDSL cable of 300m long)

**Specification of Rosemary**






- Size : 500mm x 700mm (Width x Height)
- Weight : Approx. 65kg
- N-Visage : 1 unit
- Camera : 4 cameras
- LED light : 6 lights
- Communication : Wireless communication



**Sakura**  
(Developed in NEDO's project)

## 2. Schedule

### Investigation of upper stairs Units 1 to 3

	April		May			June		
	Mid	End	Beginning	Mid	End	Beginning	Mid	End
Preparation/ Communication check								
Unit 1 Investigation								
			Scheduled to start investigation of access route (obstacles and dose) by using Sakura from April 29					
Unit 2 Investigation								
Unit 3 Investigation								
Clean up								

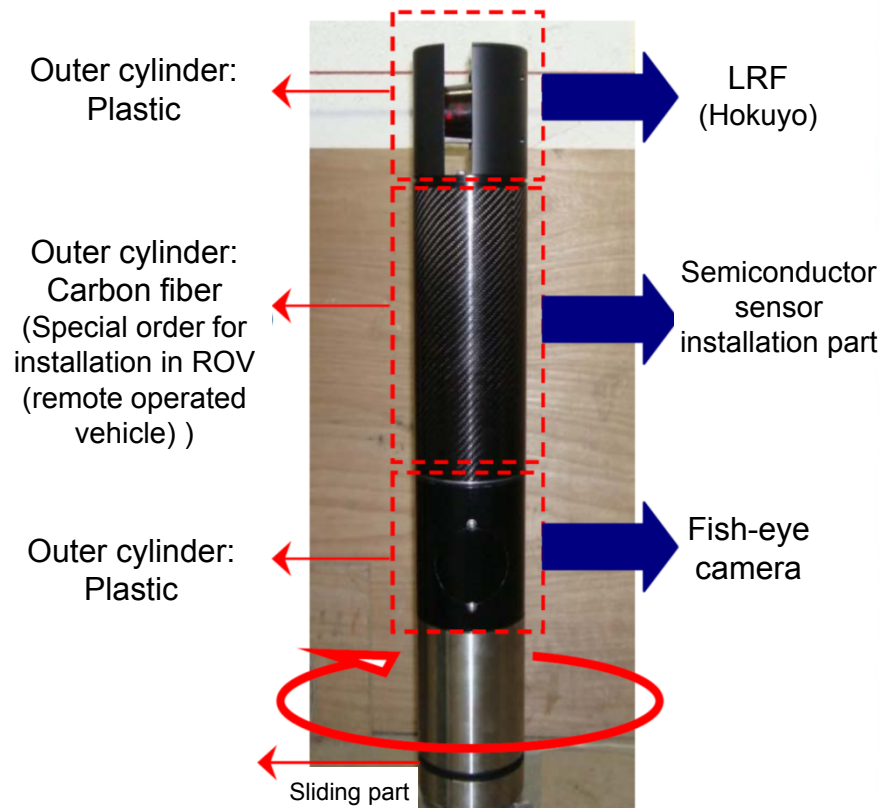
Note

 : Preparation/ Clean-up  : Investigation on site



- Analysis and evaluation results should be used for planning to decontaminate Units 1 and 3. For Unit 2 where decontamination work is already started, the decontamination planning should be reviewed according to its necessity.

# <Ref.> Specification of Gamma Camera (N-Visage)



Semiconductor elements, laser range finders (LRF) and fish-eye cameras are installed to enable 360-deg spherical scanning.

○Maker: REACT/CREATEC (made in UK)

○Size/Weight: D110xH700 Approx.17kg (with a Control Box of approx. 6kg weight)

○Detection element: Semiconductor sensor (1 element)

○Measurable BG: 0.05mSv/h to 500mSv/h (Up to 1,000mSv/h in the case of allowable range of accuracy lowering)

○Scanning time: Approx. 2.5 to 3.0 hours per scan