

# **Integrated User Interface for Utilization of Research Reactor**

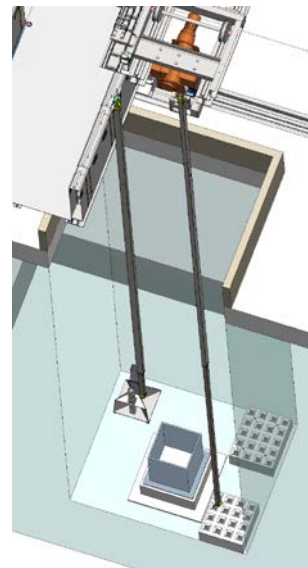
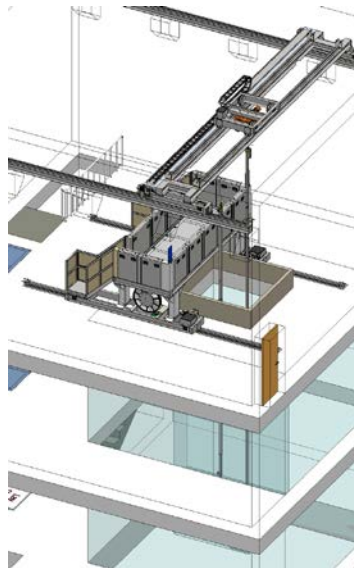
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# Introduction

- Difficulties in remote handling of RI targets in research reactor
  - The operating procedures and equipment are different depending on the type of radioisotope (RI).
  - It is difficult to check the loading stage of the target.



Remote handling of RI target in reactor pool

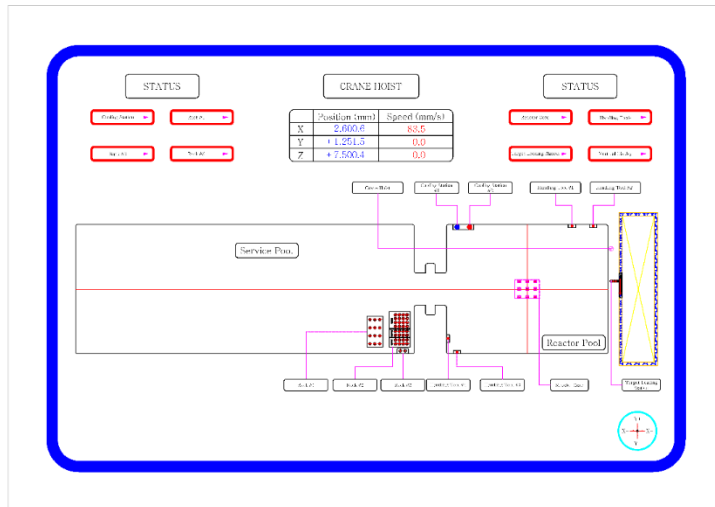
# Integrated User Interface Concept

- Interface concept
  - Displays information related to the operation in the research reactor pool for RI production.
  - Consists of a display device and a control panel.
  - Receive position and speed data from transport devices.
  - Provide the operation status as visualized information to the worker.

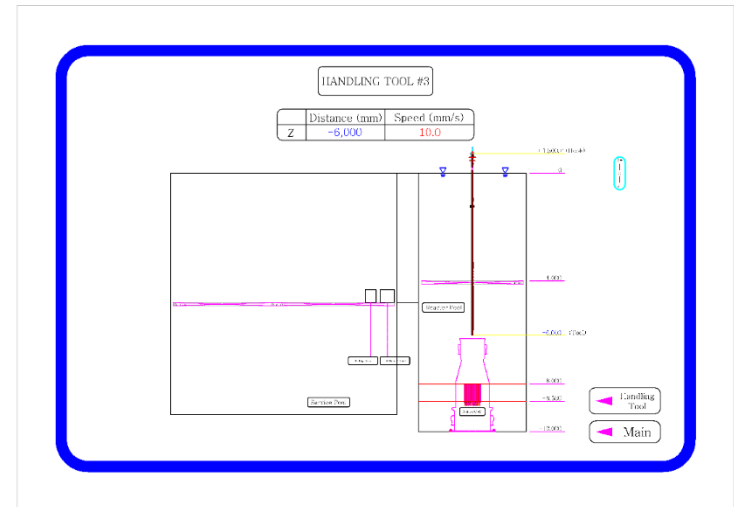
# Integrated User Interface Concept

- Display (1)

- The operator can choose the work type and work status.
- Show information and screen layout according to the selected work type.
- Position and speed of the crane hoist.
- Storage position of handling tools, racks and other facilities.
- Current position and speed of the RI target are easily checked.



Display layout of pool for horizontal transport

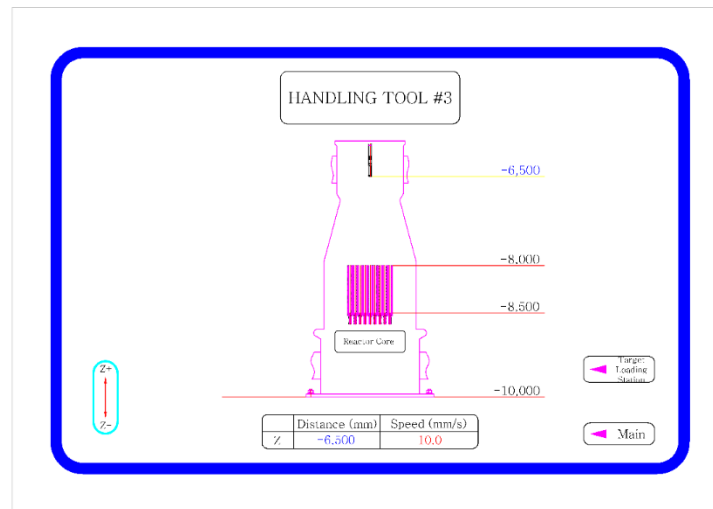


Display layout of pool for vertical transport

# Integrated User Interface Concept

- Display (2)

- Path of the handling tool and target on a schematic vertical section of the reactor when the target moves inside the reactor.
- Current loading stage of the RI target.

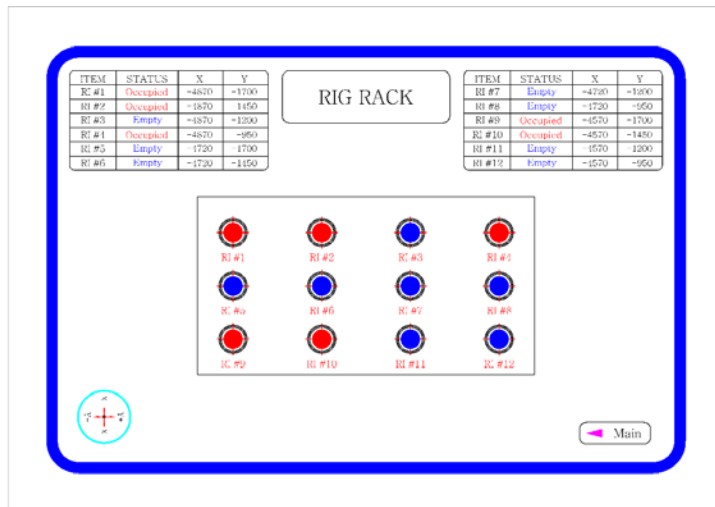


Display layout of reactor for vertical target loading

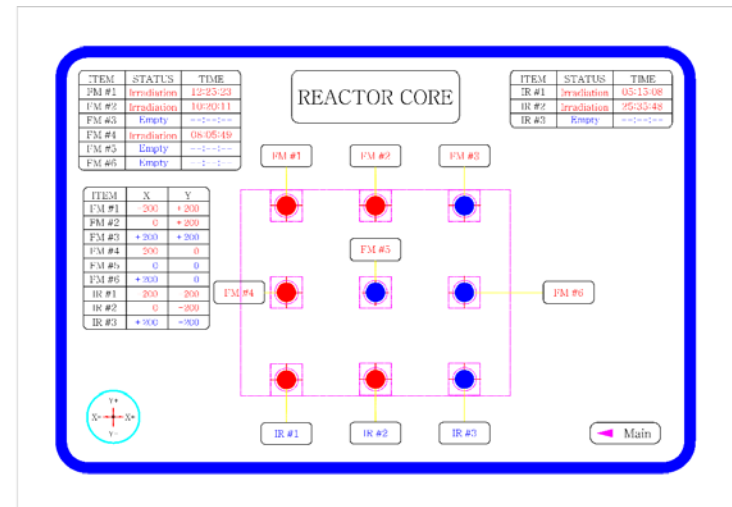
# Integrated User Interface Concept

- Display (3)

- Work status is shown in different view when the status is selected from the menu.
- Horizontal position of each irradiation location.
- Irradiation time for each irradiation hole.
- Storage status of rigs in the rack.



Display layout of irradiation holes for target loading



Display layout of rig rack for storing rig

# Integrated User Interface Concept

- **Control Panel**

- Control panel and display device are installed on the operation bridge.
- Receive position and speed data from the control panel of crane hoist and target loading device.

- **Expectations**

- Increase the efficiency of RI handling work.
- Prevent accidents induced by human error.
- Can be applied to the current research reactor without major changes.
- Help education of operators or visitors.