

The current challenges and good practices in Japan

“Dose Rate Reduction Experiences of Piping Replacement at Fukushima Daiichi Unit 4 and 5”

Atsutoshi Makihira, Tokyo Electric Power Co., Inc.

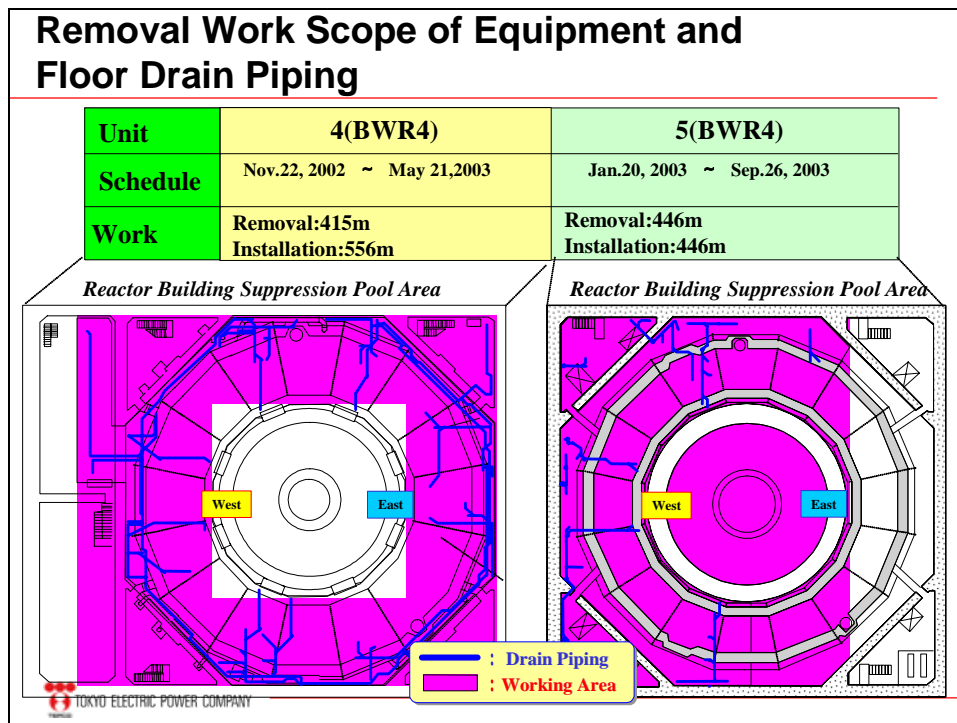


Mr. Makihira presented exposure reduction measures in the piping replacement work of RHR in the Fukushima Daiichi Unit 4 and 5.

The following exposure reduction measures were executed



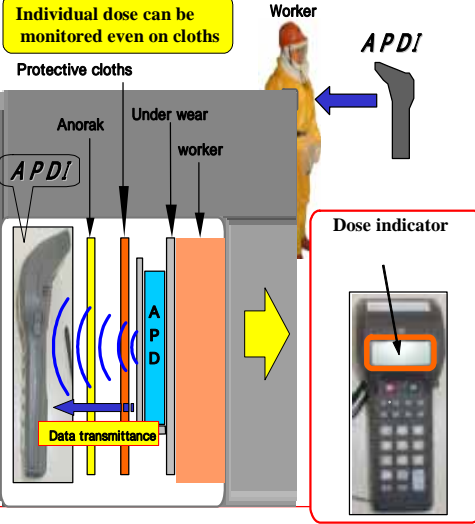
- Flushing of pipes
- Installation of temporary shields
- Treatment of the blow down water (Unit 4)
- Implementation of remote dose monitors

For remote dose rate monitor, the worker wore wireless dosimeter APD (Alarm Personal Dosimeter) besides a usual electronic personal dosimeter at high dose rate work. Moreover, measures were taken to monitor the dosimeters worn inside the protective clothes from on top (the outside) of the clothes.







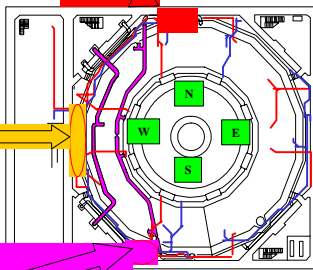


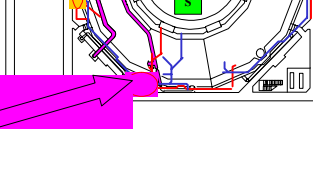
Proposals for Improvement

5. Remote Monitoring

[Unit 5]	[Unit 4 & 5]				
<p>Remote monitoring of individual dose</p> <p>Wireless APD</p>  <p>Transmittance</p>  <p>Dose indicator</p> <table border="1" data-bbox="555 651 762 846"> <tr> <td>1</td> <td>0.57</td> </tr> <tr> <td>2</td> <td>0.57</td> </tr> </table> <p>TOKYO ELECTRIC POWER COMPANY</p>	1	0.57	2	0.57	<p>Individual dose can be monitored even on cloths</p> <p>Protective cloths</p> <p>Anorak</p> <p>Under wear</p> <p>worker</p> <p>APDI</p> <p>APDI</p> <p>Worker</p> <p>APDI</p> <p>Dose indicator</p>  <p>Data transmittance</p> <p>TOKYO ELECTRIC POWER COMPANY</p>
1	0.57				
2	0.57				

Results for Improvement

Dose Rate Reduction Effectiveness after Installing Temporary Shielding

<ul style="list-style-type: none"> •CUW-19 Contact dose rate: 36.0% •RW-1C Contact dose rate: 44.4% •Field dose rate:20.0% 	 <p>CUW-19</p>  <p>RW-1C</p>	<p>Unit 4</p>
<ul style="list-style-type: none"> •Equipment drain piping •Contact:66.7% •Field:88.7% 	 <p>Equipment Drain (horizontal)</p>  <p>Equipment Drain (vertical)</p>	
<ul style="list-style-type: none"> •RW-209 pipings •Contact:66.7% •Field:86.7% 	 <p>Vertical Piping</p>  <p>Horizontal Piping</p>	

TOKYO ELECTRIC POWER COMPANY