


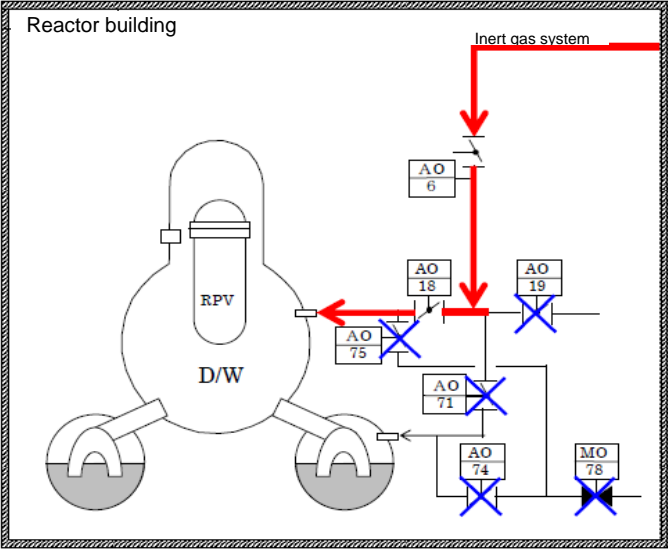

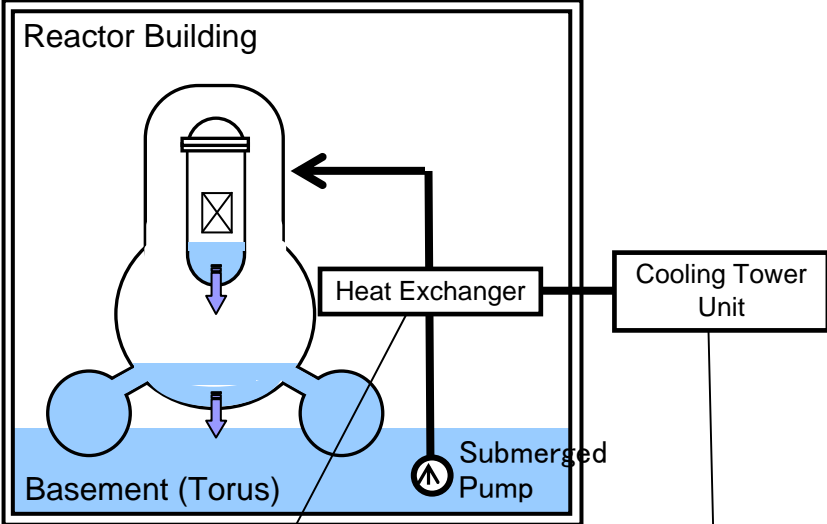






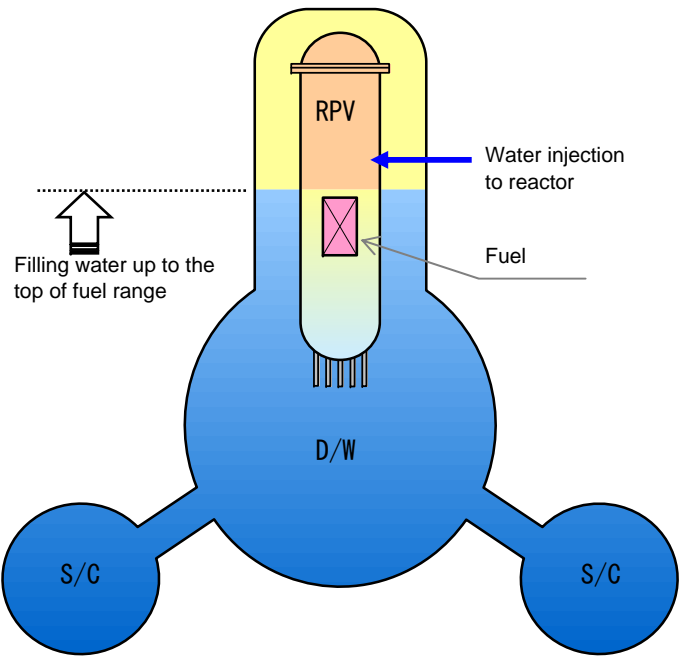

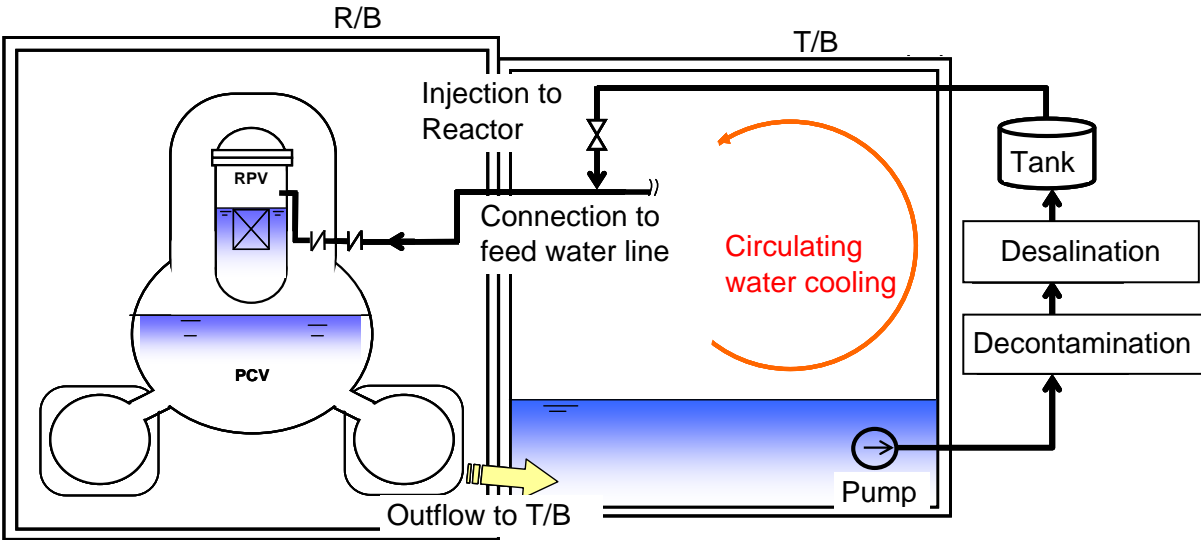
Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)
I. Cooling (1) Reactor Unit 1	Countermeasure [76] Improvement of working environment	Removal of debris, measurement of radiation dose, entrance into buildings (May 9) RPV water level gauge calibration (May 10) PCV pressure gauge calibration (May 11) Installation of water level gauge at basement of Reactor Building (May 27) Installation of temporary RPV pressure gauge (Jun. 3)	<div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;">  <p>Checking the reactor buildings by Packbot</p> </div> <div style="width: 50%;">  <p>Measuring radiation dose inside the reactor buildings</p> </div> <div style="width: 50%;">  <p>Installing temporary RPV pressure gauge</p> </div> </div>
	Countermeasure [11] Nitrogen gas injection	Implementing from Apr. 6	<div style="display: flex; justify-content: space-between;"> <div style="width: 60%;">  <p>System outline of nitrogen gas injection</p> </div> <div style="width: 35%; text-align: center;"> <p>Nitrogen gas supply apparatus</p>  </div> </div>

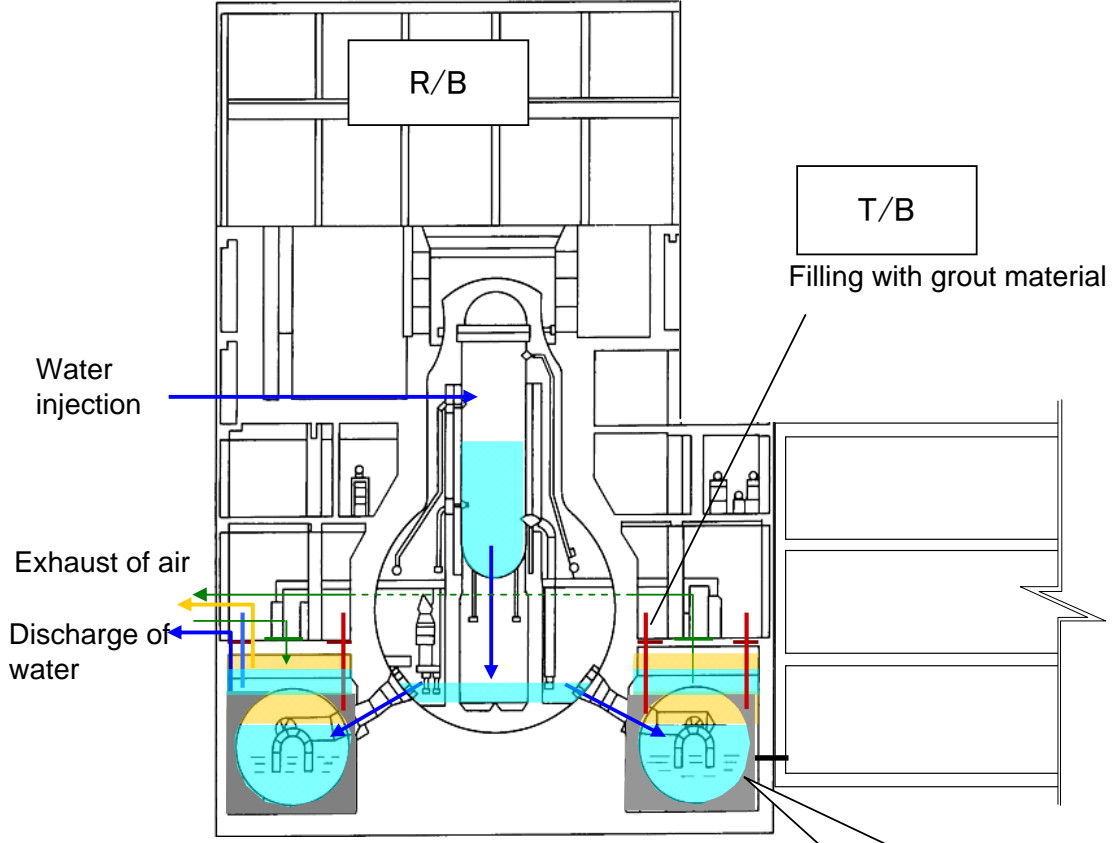
Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)
I. Cooling (1) Reactor Unit 1	Countermeasure [13] Securing heat exchange function for the reactor	<p>- Due to the leakage from the primary containment vessel (PCV), we judged that it is difficult to secure water level of PCV.</p> <p>- Therefore, we changed the plan to give priority to the establishment of circulating water cooling for the reactor.</p> <p>- We are studying the reactor cooling system by using heat exchanger as a mid to long term solution.</p> <p>(work implemented)</p> <p>- Completed the assembly of cooling tower unit and shielding equipment to reduce exposure dose for outdoor work (from May 17 to Jun. 17)</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> [Under consideration] Outline of circulating cooling system within the reactor building </div>  <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>Plate-type heat exchanger</p> </div> <div style="text-align: center;">  <p>Cooling tower unit</p> </div> <div style="text-align: center;">  <p>Shielding equipment to reduce exposure dose for outdoor work</p> </div> </div> <div style="margin-top: 10px; text-align: center;"> <p>Jun. 3, Completion of assembly of cooling unit on the trailer</p> </div> <div style="margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> Demolished and removed debris at the truck bay door, which would have been obstacles for installation of alternative cooling facilities (from May 10 to May 15) </div>  <p style="text-align: center;">Inside reactor building of Unit 1 in front of the truck bay door</p> </div>





Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)
I. Cooling (1) Reactor Unit 1	Countermeasure [14] Cooling by minimum water injection rate (Cooling by water injection)	- Implementing water injection at the rate of around 3.5m ³ /h from Jun. 22	<div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">Image of flooding the PCV</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">Inspection of water level gauge</div> </div>  
	Countermeasure [16] Sealing the leakage location	- Under examination on the implementation as mid to long term measures.	
	Countermeasure [9] Flooding the PCV	- Under examination on the implementation as mid to long term measures.	
	Countermeasures [12,45] Consideration and preparation of reuse of accumulated water	- Work on injection line (from May 21) - Started circulating water cooling from Jun. 27	 <div style="border: 1px solid black; padding: 5px; text-align: center; margin-top: 10px;"> System outline of water reuse as reactor coolant by processing accumulated water </div>
	Countermeasures [12,14,45] Initiation and implementation of circulating water cooling	- Started circulating water cooling from Jun. 27	

Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)
I. Cooling (1) Reactor Unit 2	Countermeasure [76] Improvement of working environment	Check radiation dose, entry into buildings. (May 18, May 26, Jun. 4, Jun. 11) Started local exhausters, purification operation (from Jun. 11 to Jun. 19).	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Image of the countermeasure: Sealing the damaged location of Primary Containment Vessel. </div>  <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Drilling the 1st floor of the reactor building, filling the whole torus room with grout material. </div>
	Countermeasure [11] Nitrogen gas injection	In operation from Jun. 28.	
	Countermeasure [13] Secure heat exchange function	- Prioritize the achievement of circulation cooling of reactors by circulating water cooling. For the reactor cooling facilities using heat exchanger, examine its implementation as mid to long term measures.	
	Countermeasure [6] Study on sealing methodology of leakage location of Primary Containment Vessel.	- Conducted laboratory test on sealing methodology.	
	Countermeasure [16] Sealing the leakage location	- Under examination on the implementation as mid to long term measures.	
	Countermeasure [9] Flooding the PCV	- Under examination on the implementation as mid to long term measures.	
	Countermeasure [14] Cooling at minimum water injection rate (cooling by water injection)	- In operation of water injection at rate of around 3.5 m3/h from Jun. 22. - Started operation of water injection through the core spray system from Sep. 14.	
	Countermeasures [12, 45] Consideration and preparation of reuse of accumulated water	- Construction of water injection line (from Apr. 9) - Started circulating water cooling from Jun. 27.	
	Countermeasures [12, 14, 45] Initiation and implementation of circulating water cooling	- Started circulating water cooling from Jun. 27.	

Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)
I. Cooling (1) Reactor Unit 3	Countermeasure [76] Improvement of working environment	- Removal of debris, measurement of radiation dose, entrance into buildings. (May 18, Jun. 9) - Clearance work using robots (Jul. 1) - Placement of steal boards at truck bay door (Jul. 4)	Demolished and removed debris at the truck bay door, which would have been obstacles for installation of alternative cooling facilities for Unit 3 reactor. <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Truck bay door/ Inside</p>  <p>↓</p>  <p>(After removal May 30)</p> </div> <div style="text-align: center;"> <p>Machine hatch space on the 1st floor of the reactor building</p>  <p>↓</p>  <p>(After removal Jun. 4)</p> </div> </div> <div style="text-align: center; border: 1px solid black; padding: 5px; margin-top: 10px;"> Situation of demolishing and removing debris </div>
	Countermeasure [11] Nitrogen gas injection	In operation from Jul. 14.	
	Countermeasure [13] Secure heat exchange function	- Prioritize the achievement of circulation cooling of reactors by circulating water cooling. For the reactor cooling facilities using heat exchanger, examine its implementation as mid to long term measures.	
	Countermeasure [16] Sealing the leakage location	- Under examination on the implementation as mid to long term measures.	
	Countermeasure [9] Flooding the PCV	- Under examination on the implementation as mid to long term measures.	
	Countermeasure [14] Cooling at minimum water injection rate (cooling by water injection)	- In operation of water injection at rate of approx. 9 m ³ /h from Jun. 24. - Start operation of water injection through the core spray system from Sep. 1.	
	Countermeasures [12, 45] Consideration and preparation of reuse of accumulated water	- Construction of water injection line (from Apr. 16) - Started circulating water cooling from Jun. 27.	
	Countermeasures [12, 14, 45] Initiation and implementation of circulating water cooling	- Started circulating water cooling from Jun. 27.	



Removal of outside pillars using wirelessly-controlled backhoe



Removal of debris using Brokk (wired remote control)

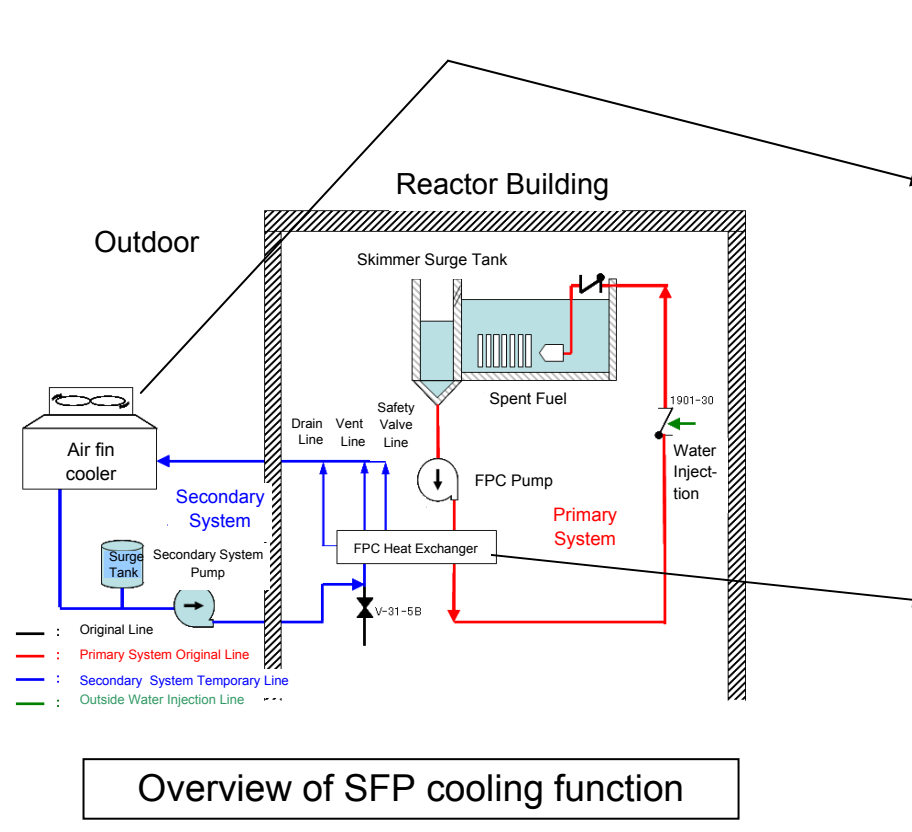
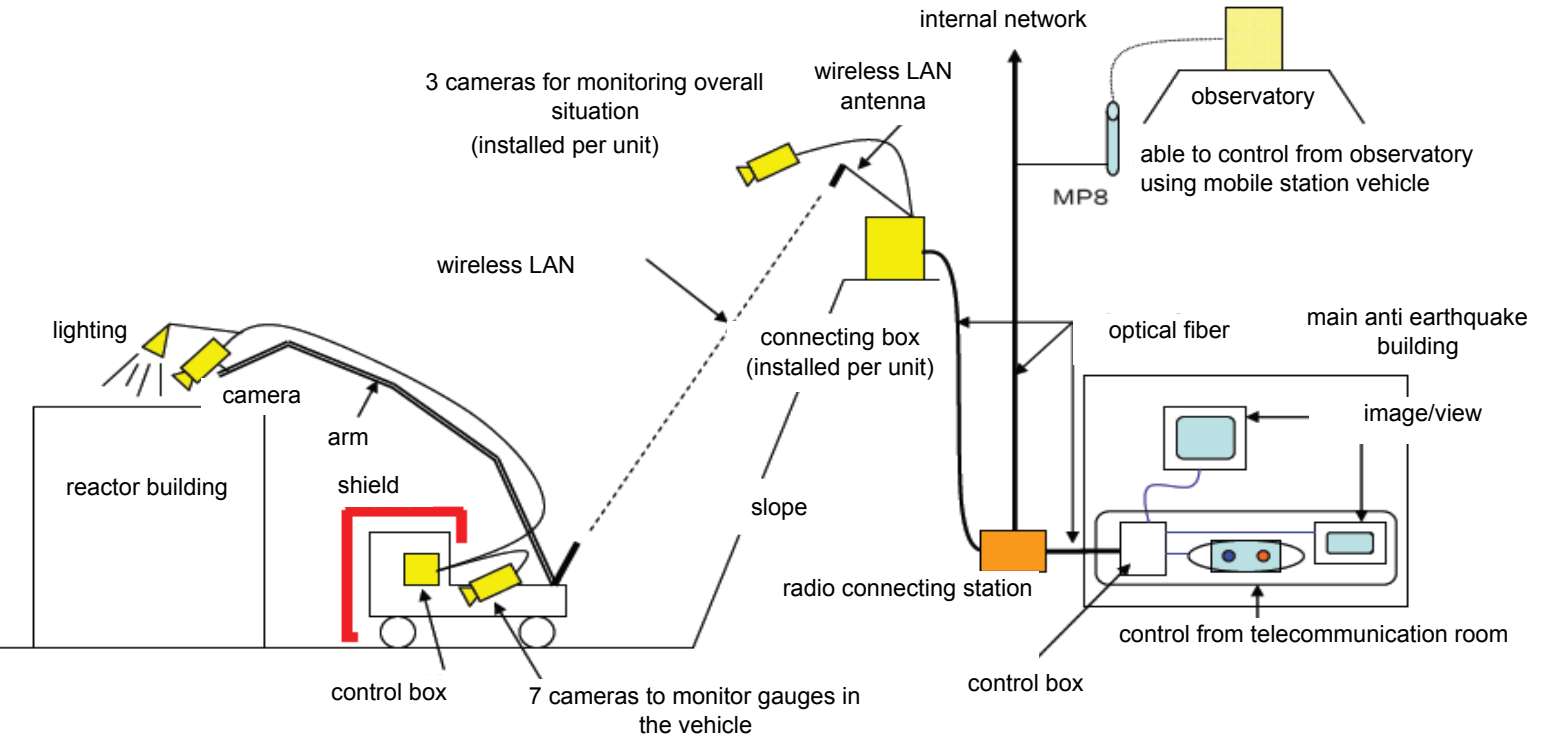


Container loading using shielded forklift

Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation status	Reference (Photos and Figures)
I. Cooling (2) Spent Fuel Pool	Unit 1	Countermeasure [22] Continuation of water injection by "Giraffe", etc	- Standby as backup after restoration of normal cooling system - Reliability improvement: enhanced durability of hoses - Measures to reduce radiation dose: switch to remote-controlled operation (arm, water injection operation)
	Countermeasure [24] Restoration of normal cooling system	- Radiation measurement by camera and robot (from Apr. 30 to May 6) - Radiation reduction by flushing and shielding facility (from May 11 to May 15) - Water injection through normal cooling system (from May 29)	Image of remote control operation of concrete pumping vehicle
	Countermeasures [25,27] Installation of heat exchanger	- Installation work of heat exchanger completed. Circulating cooling system is under operation (from Aug. 10).	

Image of remote control operation of concrete pumping vehicle



Overview of SFP cooling function







Air fin cooler


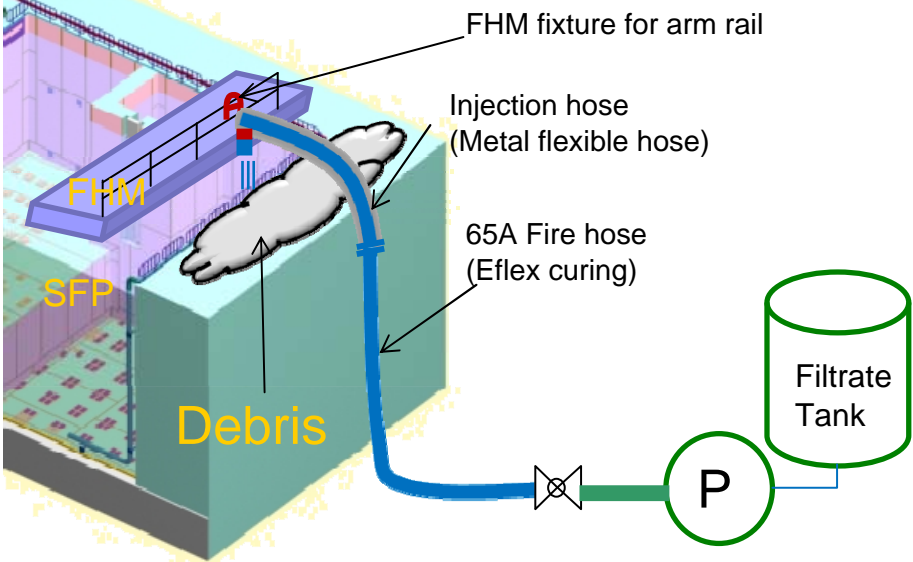



Existing heat exchanger

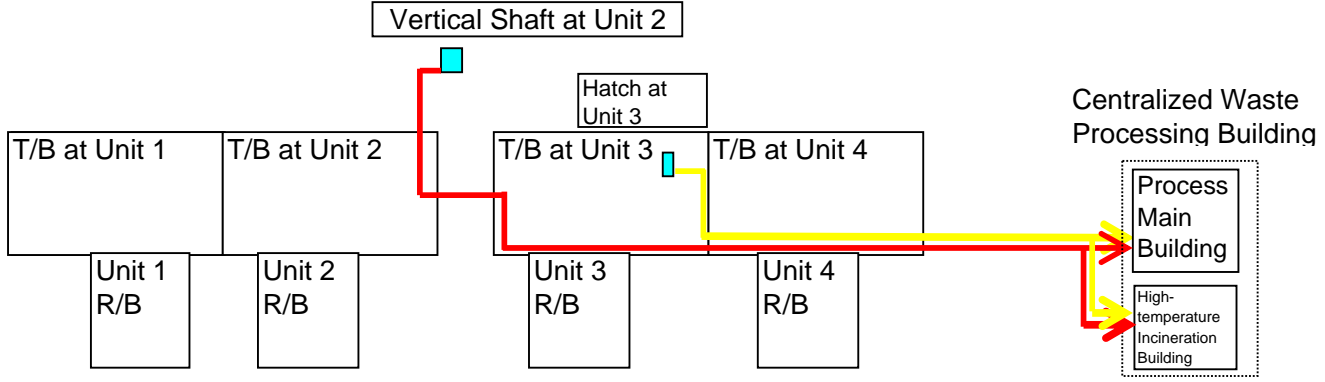




Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation status	Reference (Photos and Figures)		
I. Cooling (2) Spent Fuel Pool	Unit 2 Countermeasure [23] Restoration of normal cooling system	- Continuing	  <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div data-bbox="1368 856 2122 919" style="border: 1px solid black; padding: 2px;">Debris in Unit 2 Waste Treatment Building</div> <div data-bbox="2184 856 2763 919" style="border: 1px solid black; padding: 2px;">Unit 2 Heat Exchanger Unit</div> </div>		
		- Installation work of heat exchanger completed. Circulating cooling system is under operation (from May 31).			
	Unit 3 Countermeasure [22] Continuation of water injection by "Giraffe" etc	- Standby as backup after restoration of normal cooling system - Reliability improvement: enhanced durability of hoses - Measures to reduce radiation dose: switch to remote-controlled operation	  <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div data-bbox="1457 1759 2003 1822" style="border: 1px solid black; padding: 2px;">Unit 3 Spent Fuel Pool</div> <div data-bbox="2157 1759 2709 1822" style="border: 1px solid black; padding: 2px;">Unit 3 Heat Exchanger Unit</div> </div>		
		Countermeasure [24] Restoration of normal cooling system			- Confirmation of system integrity through water level measurement by "Giraffe," etc. (from May 8 to May 15) - Water injection through normal cooling system (from May 16 to Jun. 29)
					Countermeasures [25,27] Installation of heat exchanger

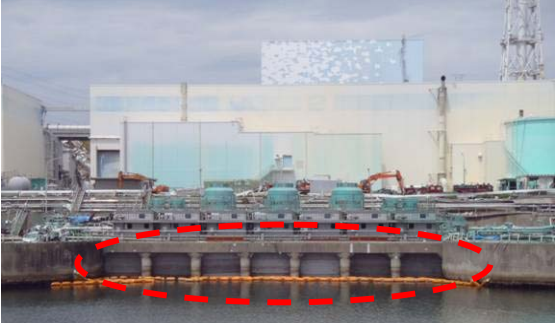


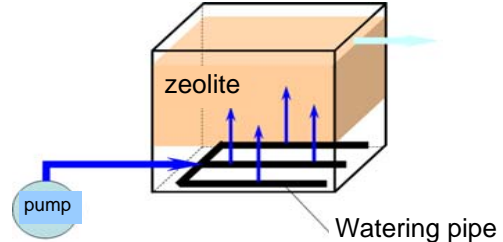



Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation status	Reference (Photos and Figures)
I. Cooling (2) Spent Fuel Pool	Countermeasure [22] Continuation of water injection by "Giraffe" etc	- Reliability improvement: enhanced durability of hoses - Measures to reduce radiation dose: switch to remote-controlled operation - Installation of water level gauge (from Apr. 22)	 <p style="text-align: center;">Water injection by "Giraffe" at Unit 4</p>
	Countermeasure [24] Restoration of normal cooling system	- Water injection by installing alternative equipment to "Giraffe" (from Jun. 17)	 <p style="text-align: center;">Alternative equipment to "Giraffe" at Unit 4</p>
	Countermeasures [25,27] Installation of heat exchanger	- Installation work of heat exchanger completed. Circulating cooling system is under operation (from Jul. 31).	 <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">Unit 4 Heat Exchanger Unit</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">Air Fin Cooler</div> </div>

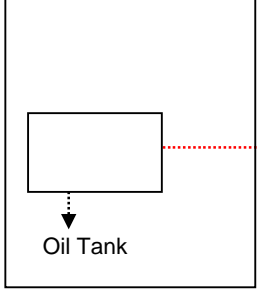

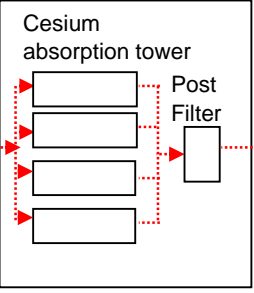

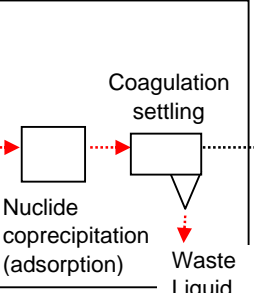

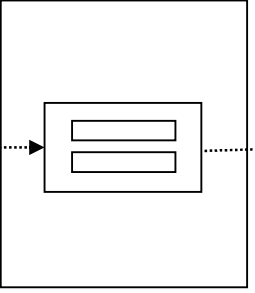

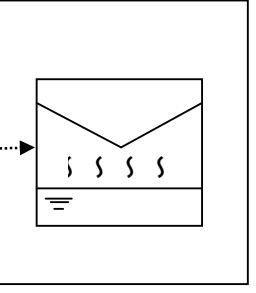

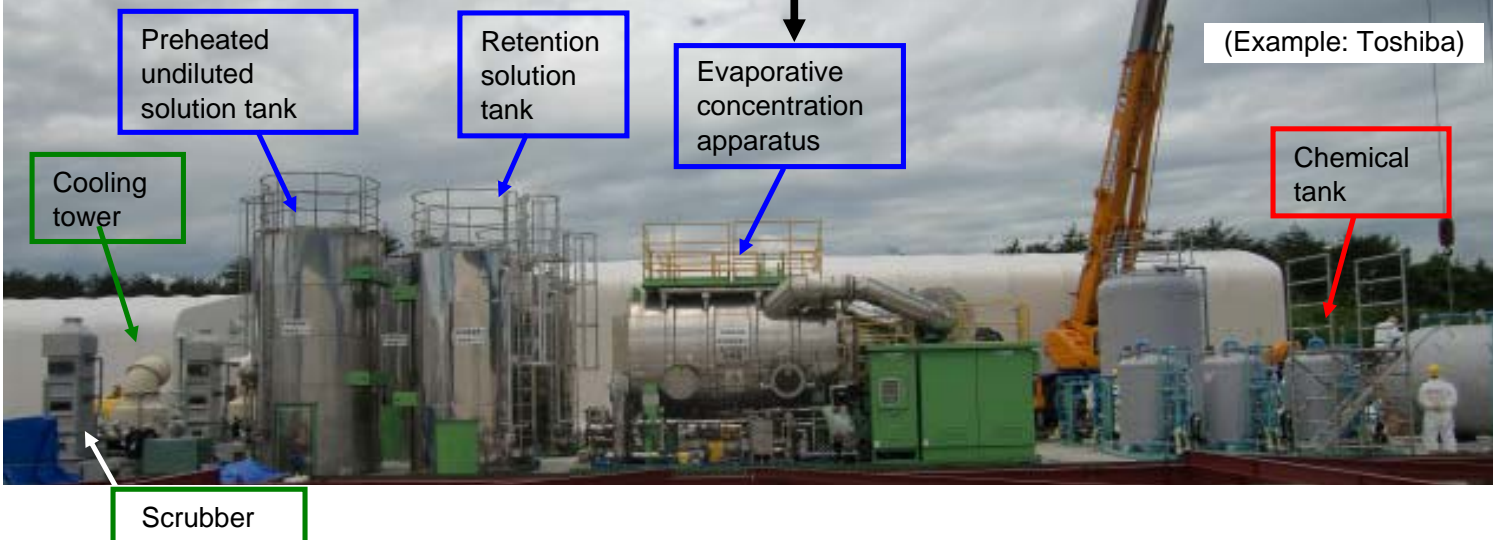

Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation status	Reference (Photos and Figures)
II. Mitigation (3) Accumulated Water	High level	<p>Countermeasures [37, 39, 42] Securing sufficient places to store contaminated water</p> <p>- Transferring to Centralized Waste Processing Building (Process Main Building and High-temperature Incineration Building) after checking non-existence of water leakage</p> <p>o Process Main Building: After checking non existence of water leakage etc., resumed transferring accumulated water from Unit 2 Turbine Building. (Apr. 19)</p> <p>o High-temperature Incineration Building: After checking non existence of water leakage etc., resumed transferring accumulated water from Unit 3 Turbine Building. (May 17)</p> <p>- Installation of underground disaster prevention tank G Area 2,800t (Sep. 17)</p>	<p style="text-align: center;"><Transferring into Centralized Waste Processing Building></p>  <div style="display: flex; justify-content: space-around;"> <div data-bbox="1486 756 2101 1207">  <p style="text-align: center;">Tanks to receive processed water (H1 area)</p> </div> <div data-bbox="2131 756 2745 1207">  <p style="text-align: center;">Underground disaster prevention tanks for processed water (Highly contaminated water)</p> </div> </div> <div style="text-align: center; margin: 10px 0;">  </div> <div data-bbox="2131 1344 2745 1795">  <p style="text-align: center;">Underground disaster prevention tanks for processed water (Highly contaminated water)</p> </div>




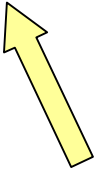
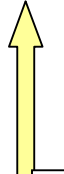
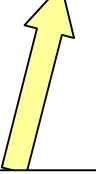
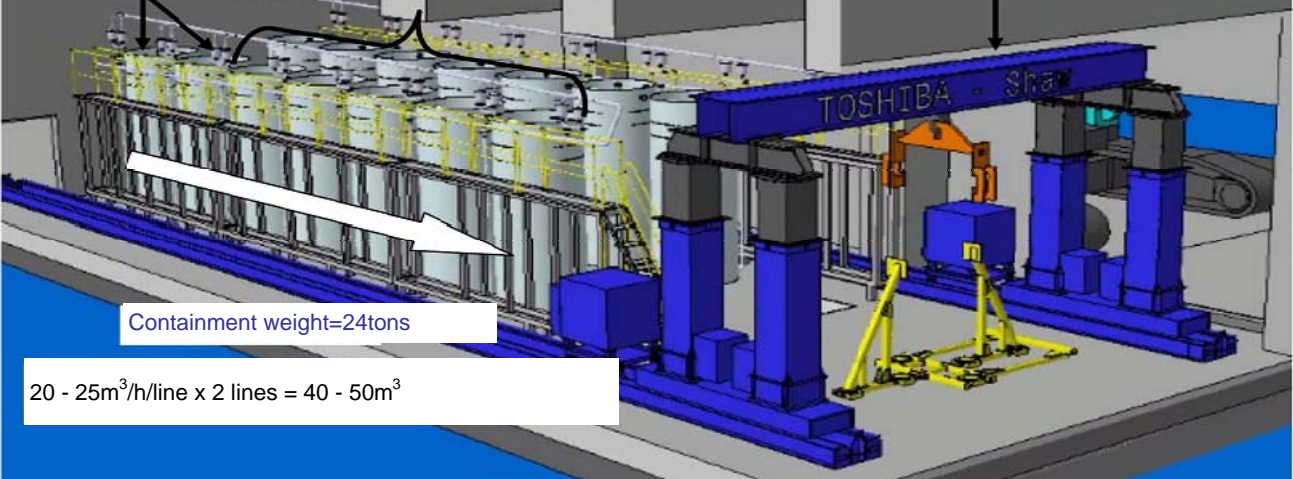

Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation status	Reference (Photos and Figures)
II. Mitigation (3) Accumulated Water	High level	<p>Countermeasure[64] Consideration of mitigation of contamination in the ocean</p> <ul style="list-style-type: none"> - Completed setting up silt fence (Apr. 14) - Preparation work for setting steel pipe sheet piles [Completed removing curtain wall] - Purification of sea water by circulating purification system (from Jun. 13) - Completed setting up sliding concrete wall at intake of Units 1 to 4 (Jun. 29) <ul style="list-style-type: none"> - Work of placing steel pipe sheet pile (from Aug. 17 to the end of Sep.) (Implemented in order to block the damaged parts of permeation prevention structure due to tsunami at the south side of intake canal of Units 1 to 4) 	<div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%; text-align: center;">  <p>Sliding concrete wall at intake (Unit 2)</p> </div> <div style="width: 50%; text-align: center;">  <p>Sliding concrete wall at intake (Setting work)</p> </div> <div style="width: 50%; text-align: center;">  <p>Placing steel pipe</p> </div> <div style="width: 50%; text-align: center;">  <p>Shipping steel pipe sheet pile</p> </div> <div style="width: 50%; text-align: center;"> <p><Adsorption of cesium by zeolite></p>  </div> <div style="width: 50%; text-align: center;"> <p><Appearance of the system></p>  </div> </div>
		<p>Countermeasure [65] Containment of high level radioactive water</p> <ul style="list-style-type: none"> - Closure of sea water piping vertical shaft <p>Unit 2: completed on Jun. 2, Unit 3: completed on May 26, Unit 4: completed on Apr. 6</p> <ul style="list-style-type: none"> - Closure of pits and others <p>Unit 1: completed on May 17 Unit 2: completed on Jun. 9 Unit 3: completed on Jun. 10 Unit 4: completed on Jun. 10</p>	<div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%; text-align: center;">  <p>Closure of sea water piping vertical shaft (left: before closure, right: after closure)</p> </div> <div style="width: 50%; text-align: center;">  <p>Closure of pit (left: before closure, right: after closure)</p> </div> </div>





Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation status	Reference (Photos and Figures)
<p style="text-align: center;">II. Mitigation</p> <p style="text-align: center;">(3) Accumulated Water</p>	<p style="text-align: center;">High level</p> <p>Countermeasures [38, 43] Installation of Treatment Facility/Continuance of Elimination and Treatment of Contaminated Water in the Building</p>	<p>[Decontamination of Contaminated Water] Started on Jun. 17</p> <ul style="list-style-type: none"> - Cesium adsorption instruments (Kurion) + Decontamination apparatus (Areva) Processing started on Jun. 17 - 2nd Cesium adsorption apparatus (SARRY): Started on Aug. 18 <p>[Desalting of Contaminated Water]</p> <ul style="list-style-type: none"> - Water Desalinations (RO method): Phase I (RO1A/B, RO2): Processing started on Jun. 17 Phase II (RO3): Processing completed on Jul. 20 - Water Desalinations (Distilling equipment): Started treatment on Aug. 7 (2A, 2B: Toshiba portion) Started treatment on Aug. 31 (1A, 1B, 1C: Areva portion) Plan to start treatment in mid of Oct. (3A/B/C: Toshiba portion) - Additional sludge waste storage tanks are under preparation [Storage of sludge waste] - Storing sludge waste in the pellet storage tank - Additional sludge waste storage tanks are under preparation 	<p style="text-align: center;"><Decontamination flow of contaminated water></p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>I. Oil separators</p>   </div> <div style="text-align: center;"> <p>II. Cesium adsorption apparatus</p>   </div> <div style="text-align: center;"> <p>III. Decontamination apparatus</p>   </div> <div style="text-align: center;"> <p>IV. Desalination apparatus 1 (RO method)</p>   </div> <div style="text-align: center;"> <p>V. Desalination apparatus 2 (evaporative concentration)</p>   </div> </div>
		 <p style="text-align: right;">(Example: Toshiba)</p>	 <p style="text-align: center;">Evaporative concentration apparatus (3A/B/C)</p>




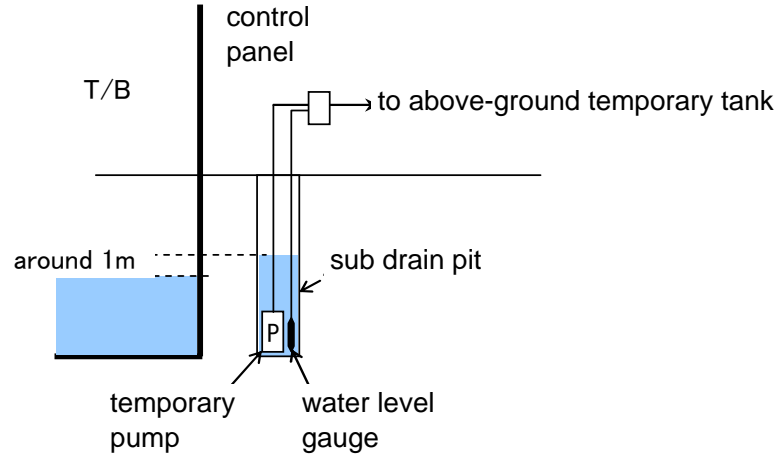
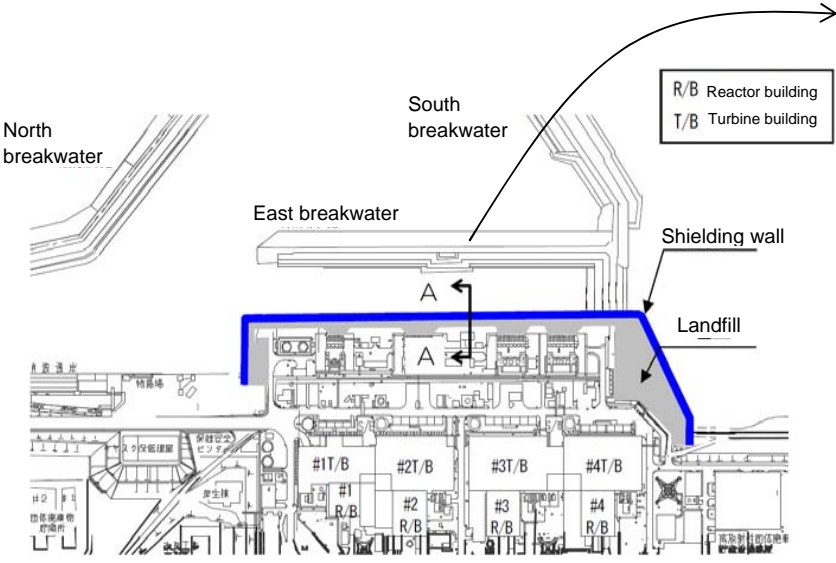
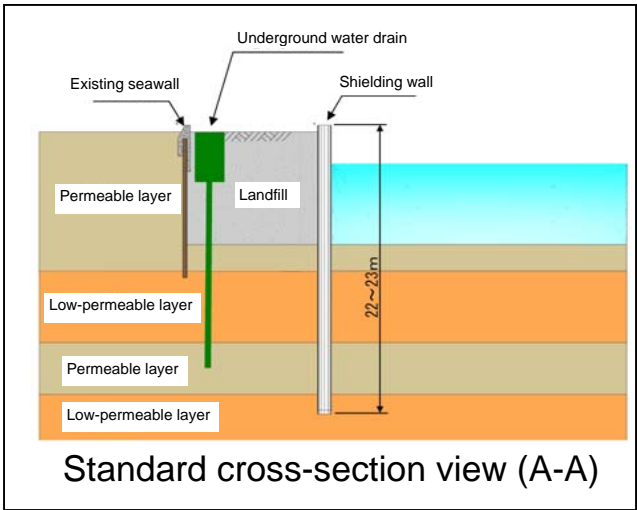
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<p style="text-align: center;">II. Mitigation</p> <p style="text-align: center;">(3) Accumulated Water</p>	<p style="text-align: center;">High level</p> <p>Countermeasures [38, 43] Installation of Treatment Facility/Continuance of Elimination and Treatment of Contaminated Water in the Building</p>		<div style="display: flex; justify-content: space-around;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p>Installation of cesium adsorption tower</p>  </div> <div style="text-align: center;"> <p>Cesium adsorption towers</p>  </div> <div style="text-align: center;"> <p>Installation of lifter for changing adsorption towers</p>  </div> </div> <div style="margin-top: 20px;"> <p>Removes oil etc</p> <p>Removes Cs. Front row contains low level adsorption material, the back row contains high level</p> <p>Install special heavy machinery for lifting (hydraulic) and transfer machinery indoors, remove and transfer waste adsorption tower</p>  <p>Containment weight=24tons</p> <p>20 - 25m³/h/line x 2 lines = 40 - 50m³</p> </div> <div style="margin-top: 20px;"> <p>Expansion of Decontamination Function</p> <pre> graph TD Kurion["Kurion (USA)"] <--> AREVA["AREVA (France)"] Kurion <--> SARRY["SARRY (USA, Japan)"] AREVA <--> SARRY </pre> </div> 





Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation status	Reference (Photos and Figures)
II. Mitigation (3) Accumulated Water	Low level	<p>Countermeasure [40, 41] Increase storage capacity / decontamination</p> <p>Increase of storage capacity and continuation of decontamination of contaminated water</p> <ul style="list-style-type: none"> - Installation of tanks for processed water: <ul style="list-style-type: none"> Waste liquid RO supply <ul style="list-style-type: none"> B Area 6,200t (May 31) RO processed water temporary storage tank <ul style="list-style-type: none"> D Area 5,000t (May 10) RO condensed water temporary storage tank <ul style="list-style-type: none"> E Area 8,000t (May 22) RO condensed water storage tank <ul style="list-style-type: none"> H Area 55,000t (Sep. 16) Evaporation treatment fresh water storage tank <ul style="list-style-type: none"> H Area 5,000t (Jul. 21) Evaporation waste liquid storage tank <ul style="list-style-type: none"> H Area 5,000t (Jul. 31) - Low level tank <ul style="list-style-type: none"> F Area 12,200t (May 31) - Megafloat <ul style="list-style-type: none"> 10,000t (May 21) 	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p><Megafloat></p>  </div> <div style="text-align: center;"> <p><F Area Tanks></p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><Square shape tanks></p>  </div> <div style="text-align: center;"> <p><Round shape tanks></p>  </div> </div> </div> </div>
		<p>Utilization of decontaminant (zeolite)</p> <p>Setting in water, self-circulation and adsorption of Cesium by zeolite</p> <p>Decontamination of accumulated water in Unit 6 T/B after transferring to receiver tanks for low level water</p> <p>Full-scale operation (from May 1)</p>	 <div style="background-color: blue; color: white; padding: 5px; text-align: center; margin-top: 5px;"> Decontaminant (zeolite) </div>








Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation status	Reference (Photos and Figures)
II. Mitigation (4) Groundwater	Countermeasure [66] Consideration of mitigation measures of groundwater contamination	<ul style="list-style-type: none"> - Closing of vertical shaft of seawater pipe Unit 2: Completed on Jun. 2 Unit 3: Completed on May 26 Unit 4: Completed on Apr. 6 - Closure of pits, etc. Unit 1: Completed on May 17 Unit 2: Completed on Jun. 9 Unit 3: Completed on Jun. 10 Unit 4: Completed on Jun. 10 	<div style="display: flex; justify-content: space-around;">    </div> <div style="display: flex; justify-content: space-around; margin-top: 5px;"> <div style="border: 1px solid black; padding: 2px; text-align: center;">Putting in crushed stones</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">Concrete placement</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">Mortar placement</div> </div>
	Countermeasure [67] Implementation of mitigation measures of groundwater contamination	<ul style="list-style-type: none"> - Restoration of sub drain pumps On T/B side Installation of pumps at sub drain pits. Completed at 7 points on Jul. 29 Completed laying the transfer piping arrangement on Aug. 31 - On R/B side Considering locations to install the pumps - Restoration of sub drain along with expansion plan of storage/processing facility. 	 <p style="text-align: center;">Image of restoration of sub drain pump</p>
	Countermeasure [68] Construction of shielding wall of groundwater	<ul style="list-style-type: none"> - Completed basic design of shielding wall on Aug. 31 - Under investigation of underground water level, water quality, etc. by boring. <p><Next step></p> <ul style="list-style-type: none"> - Implement study for optimization of shielding section, installation plan. - Start construction for sea side area during Step 2 - Investigate and study for landward area by the end of Step 2 	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">  <p style="text-align: center;">Plain view</p> </div> <div style="width: 45%;">  <p style="text-align: center;">Standard cross-section view (A-A)</p> </div> </div> <p style="text-align: right;">Figure of basic plan of shielding wall</p>








Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)
II. Mitigation (5) Atmosphere / Soil	Countermeasure [52] Dispersion of inhibitors	<p>[Present Status] Completed dispersion of inhibitor</p> <p>-Record of dispersion: Approx. 560,000m²</p> <p><Inside power station (flat land and slope)>: Approx. 400,000m²</p> <p>-Test dispersion (Apr. 1 to Apr. 25): Approx. 30,000m²</p> <p>-Full dispersion (Apr. 26 to Jun. 28): Approx. 370,000m²</p> <p><Around buildings>: Approx. 160,000m²</p> <p>-Dispersion by using a crawler dump truck (Apr. 26 to Jun. 27) Around buildings of Units 1 to 4, 5 and 6: Approx. 120,000m²</p> <p>-Dispersion by bending spray tower vehicle (May 27 to Jun. 4, Jun. 10) Turbine building of Units 1 to 4, roof and wall of reactor building of Unit 2: Approx. 30,000m²</p> <p>-Dispersion by concrete pumping vehicle (Zebra) (Jun. 8,9,18) Roof and wall of reactor building of Units 1,3,4: Approx. 10,000m²</p> <p>We will keep monitoring status of solidification, etc. at dispersed areas.</p>	<div style="display: flex; flex-direction: column; align-items: center;">  <p style="text-align: center;">Dispersion of inhibitors in the Power Station (slope)</p>  <p style="text-align: center;">Dispersion of inhibitors around buildings of Units 1 to 4 by crawler dump</p>  <p style="text-align: center;">Dispersion of inhibitors by bending spray tower vehicle</p>  </div>





Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)		
II. Mitigation (5) Atmosphere / Soil	Countermeasure [52] Dispersion of inhibitors				
			Dispersion of inhibitors in the Power Station (slope)	Dispersion of inhibitors in the Power Station (slope)	
					
			Dispersion of inhibitors in the Power Station (flat surface)	After dispersion of inhibitors in the Power Station (slope)	
					
			After dispersion of inhibitors in the Power Station (flat surface)	After dispersion of inhibitors in the Power Station (slope)	After dispersion of inhibitors in the Power Station (flat surface)

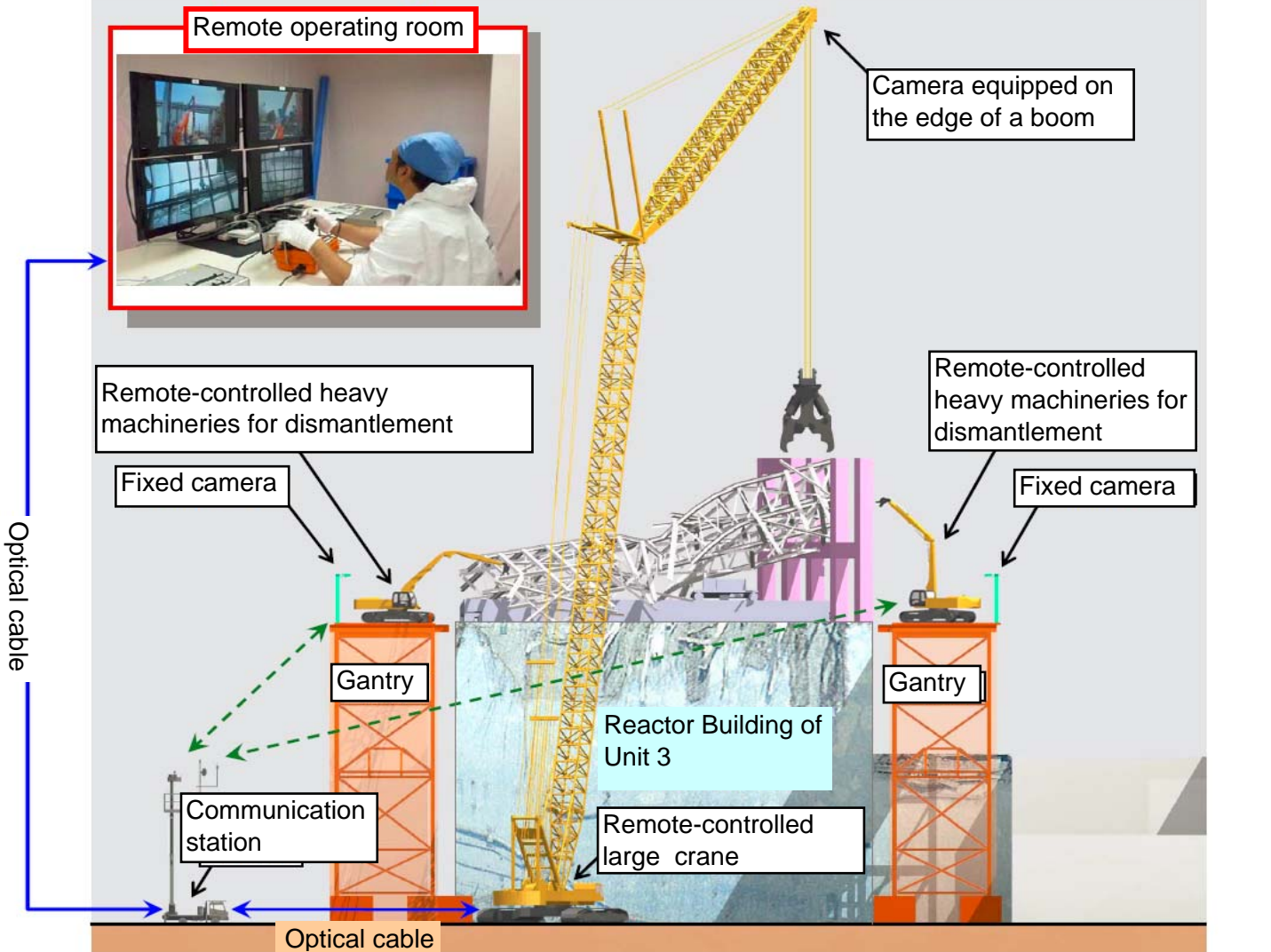


Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)
II. Mitigation (5) Atmosphere / Soil	<p>Countermeasures [53, 87] Removal and management of debris</p>	<p><<Removal of debris>> - In order to mitigate exposure dose of the workers and improve work efficiency at the site, we have started removing the debris after storing them in the containers using remote-controlled heavy machinery (hydraulic shovel, crawler dump truck, bulldozer) (since Apr. 6). - Almost all of the debris in highly-radioactive area outside the buildings of Units 1 to 4 (airborne radiation 10mSv/h or more) is removed. Debris at the ocean side of the turbine buildings of Units 1 to 4 etc. was removed. <Record of removal of debris as of Sep. 20> - Approx.800 containers of debris are removed. <Plan for further implementation> - We will continue removing outside debris, which hinders work. <<Management of debris>> ・ Wasted materials which were output through the restoration work such as removed debris and trees cut down for cleaning and arranging the area are stored in the conservation area, according to its kinds and its amount of radiation dose. <Management in the conservation area> ・ The debris is stored in containers and buildings according to its amount of radiation dose etc., and workers are not able to approach to them easily. ・ The approach lane to the waste storage area is marked off and a sign has been installed that prohibits unnecessary entrance of unauthorized personnel. <Securing the storage area> ・ Except for the accumulated water treatment facilities and the other areas under construction, the storage areas are secured, by fully utilizing the land within the site.</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Before removal</p> </div> <div style="font-size: 2em;">➔</div> <div style="text-align: center;">  <p>After removal</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">  <p>Before removal</p> </div> <div style="font-size: 2em;">➔</div> <div style="text-align: center;">  <p>After removal</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">  <p>Storage at the yard within the site</p> </div> <div style="text-align: center;">  <p>Storage tent</p> </div> <div style="text-align: center;">  <p>Containers</p> </div> </div> <div style="text-align: center; margin-top: 20px;"> <p>Status of the storage areas of the removed debris</p> </div>

Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)
II. Mitigation (5) Atmosphere / Soil	Countermeasure [54] Installation of reactor building cover	<<Unit 1>> • Started preparation work * (from May 13) * { <ul style="list-style-type: none"> • Maintenance of roads for a crane • Creation of slope for crane to crawl • Maintenance of shallow draft quay • Started main structure construction work (from Jun. 28) <ul style="list-style-type: none"> • Start of steel-frame work (Aug.10) • Completion of steel-frame work of main structure (Sep. 9) • Start of installation of wall panels (since Sep. 10) 	<<Unit 1 progress status>> <div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="text-align: center;">  <p>Aug 10: Start of steel-frame work</p> </div> <div style="text-align: center;">  <p>Aug 14: Status of steel-frame work (north side)</p> </div> <div style="text-align: center;">  <p>Sep. 9: Completion of steel-frame work (northwest side)</p> </div> <div style="text-align: center;">  <p>Sep 15: Status of wall panels (northwest side)</p> </div> </div>

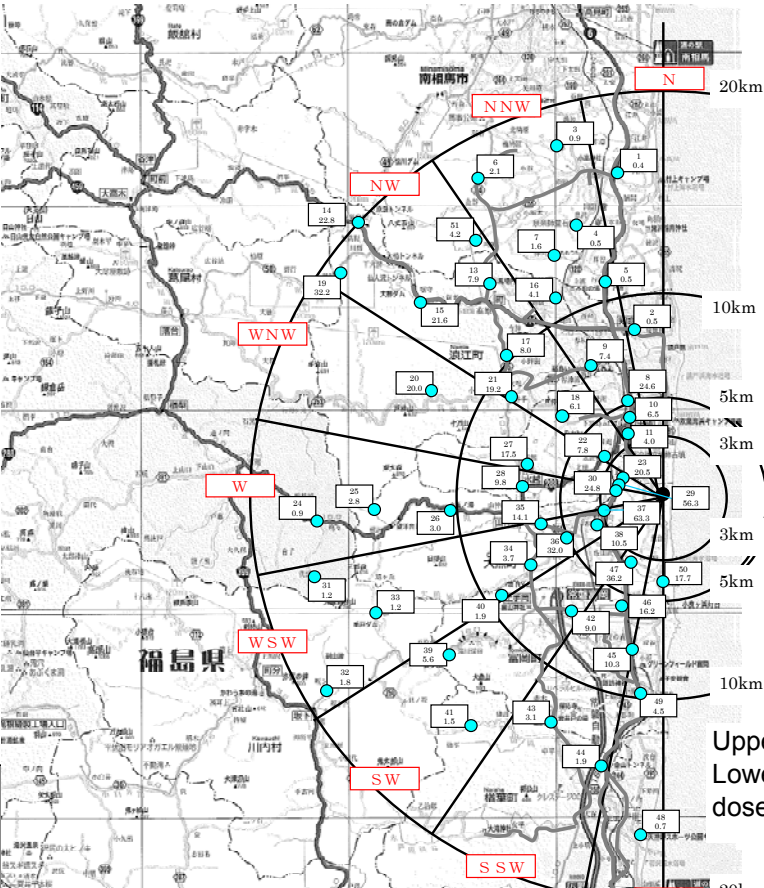
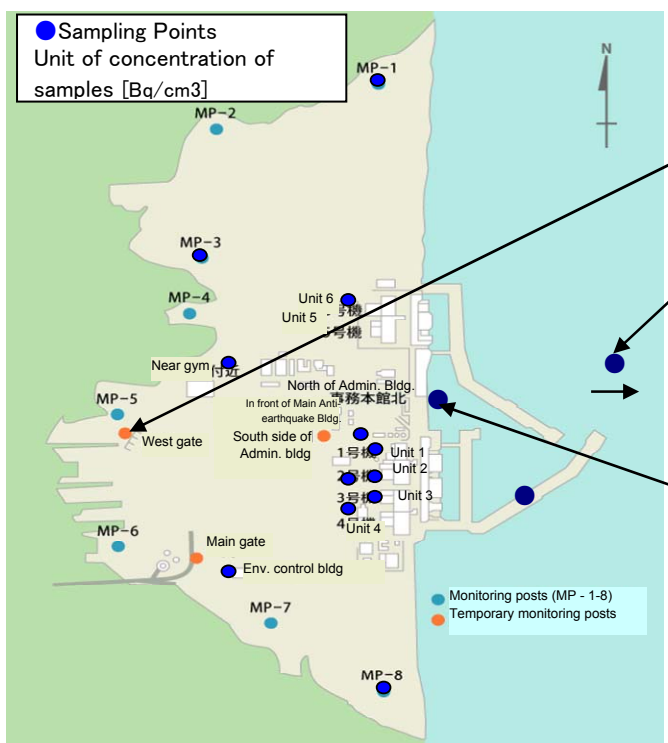
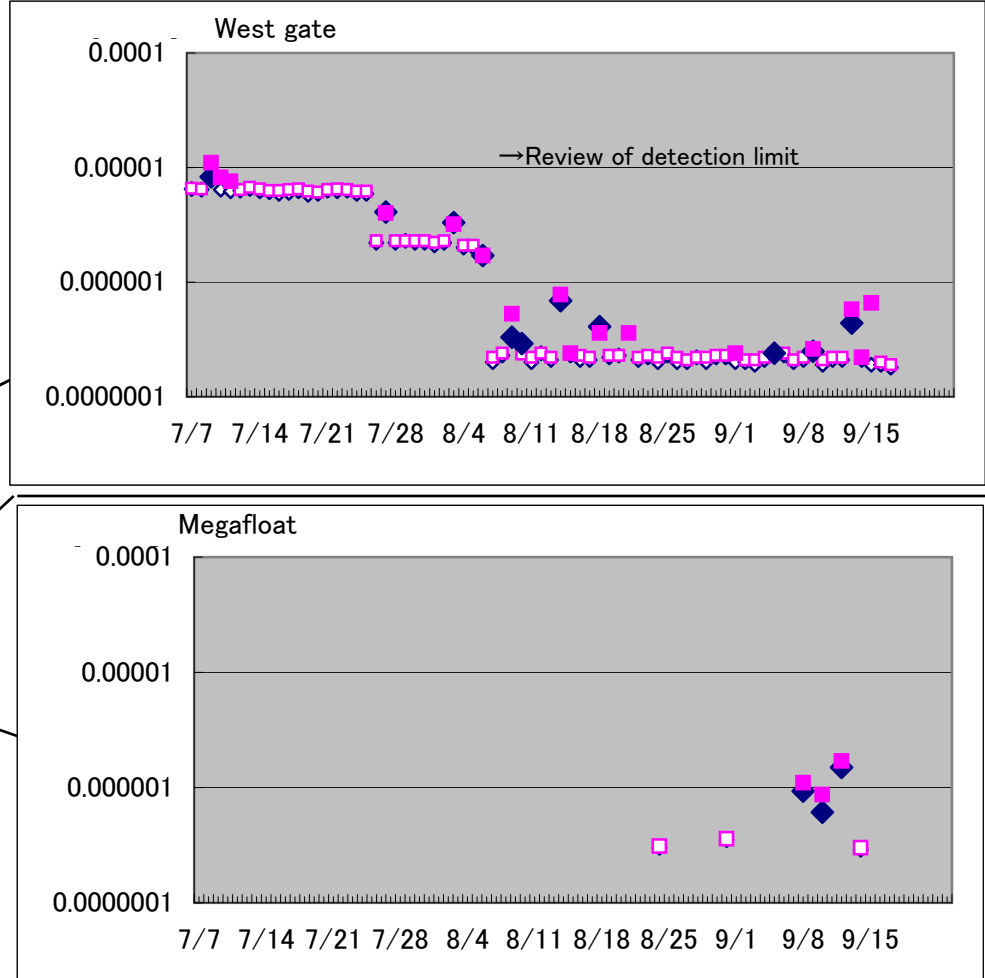
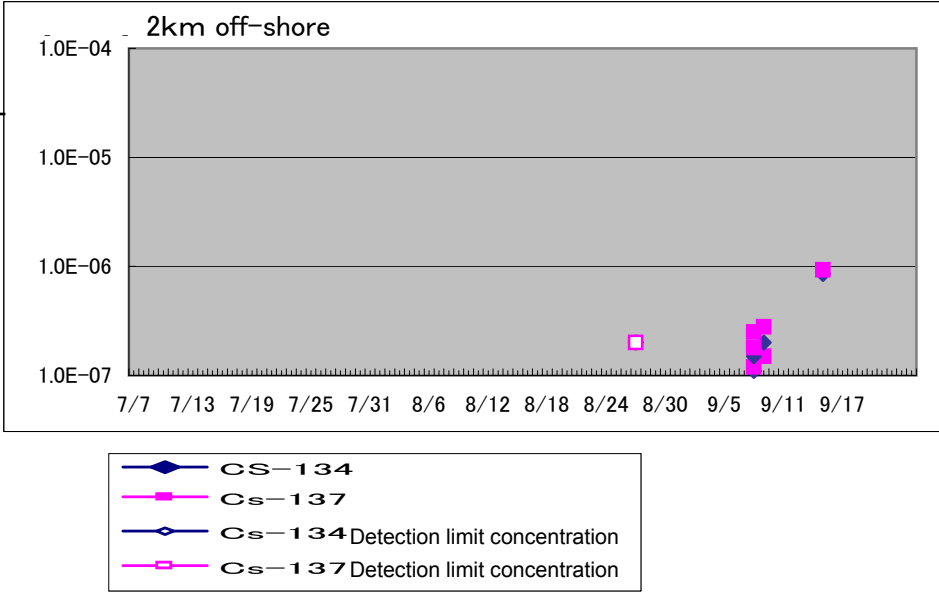
Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)
II. Mitigation (5) Atmosphere / Soil	[Countermeasure 84] Removal of debris on top of the reactor buildings	<<Unit 3>> - Commencement of preparation work from Jun. 20 <<Unit 3>> - Commencement of main construction work from Sep. 10	 <p style="text-align: center;">Image of removal of debris on top of the reactor</p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="1424 1386 2003 1837">  <p>Status of removal of debris on top of the reactor building (Demolition of pendant pillar at west side)</p> </div> <div data-bbox="2077 1386 2760 1837">  <p>Clearance of fallen debris at the south side and around the building</p> </div> </div>

Progress Status Classified by Issues (Photos and Figures)

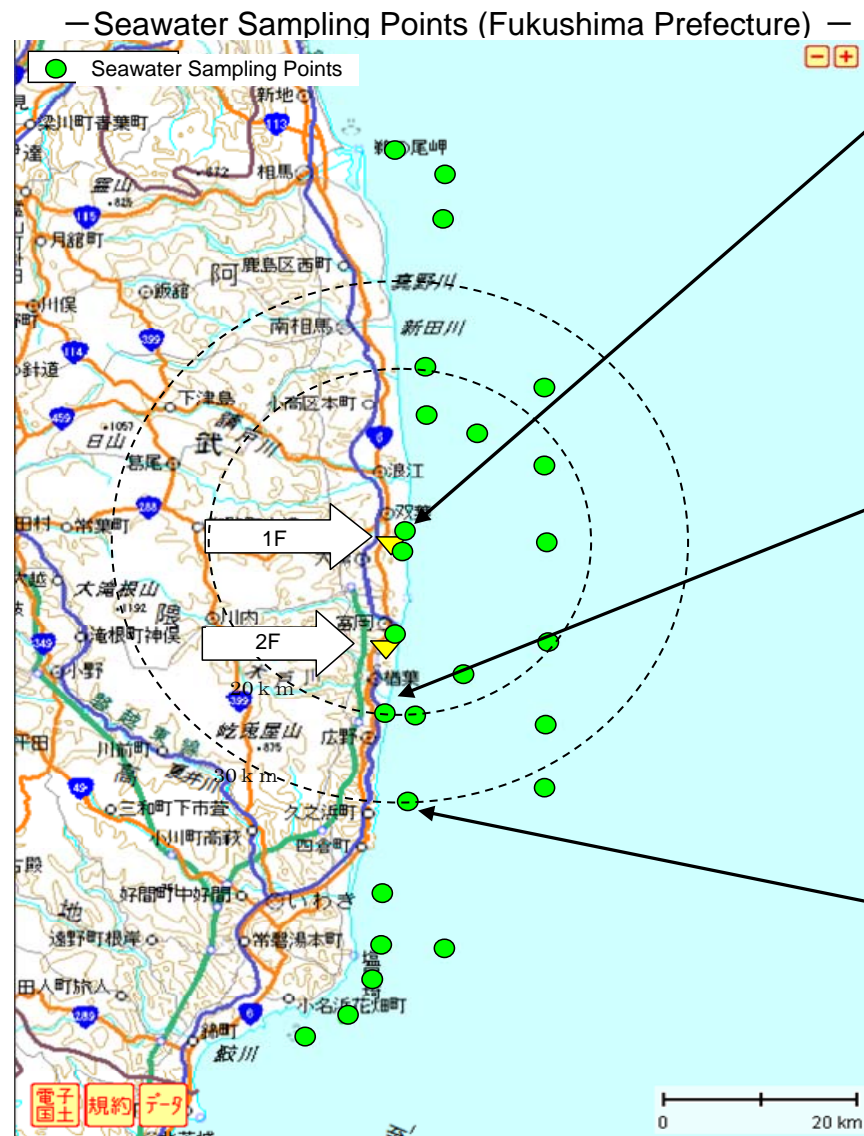
Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)
II. Mitigation (5) Atmosphere / Soil	[Countermeasure 84] Removal of debris on top of the reactor buildings	<<Unit 4>> - Commencement of preparation work from Jun. 24 <<Unit 4>> - Commencement of main construction work from Sep. 21(planned)	<div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%; text-align: center;">  <p>Demolition of obstacles at the work yard</p> </div> <div style="width: 50%; text-align: center;">  <p>Image of removal of debris on top of the reactor building</p> </div> <div style="width: 33%; text-align: center;">  <p>Installation of rest stations</p> </div> <div style="width: 33%; text-align: center;">  <p>Preparation of roadbed at the work yard</p> </div> <div style="width: 33%; text-align: center;">  <p>Preparation of working environment on the refueling floor</p> </div> </div>

Progress Status Classified by Issues (Photos and Figures)

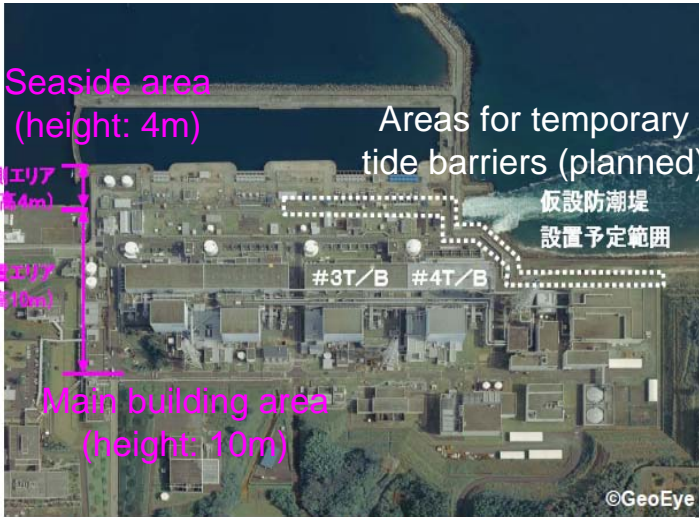
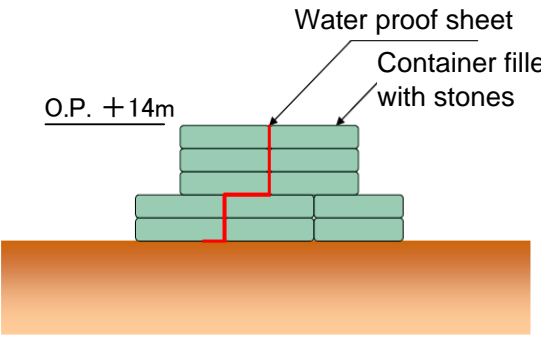




Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">III. Monitoring/Decontamination</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">(6) Measurement, Reduction and Disclosure</p>	<p>Countermeasure [60,61] Expansion, enhancement and disclosure of monitoring</p>	<p>Continue monitoring in and out of the power station [Land area] <Monitoring within 20km radius of the periphery></p> <ul style="list-style-type: none"> Monitoring of airborne radiation dose rate at 50 points by Utility Support Team (once a week) Dust sampling at 5 points near 10 km radius of the periphery (Sep. 14) <p><Monitoring within the site></p> <ul style="list-style-type: none"> Measurement of airborne radioactivity concentration near the West Gate (everyday) Measurement of airborne radioactivity concentration at the sea side (since Aug. 24) Measurement of radioactive materials at the upper part of reactor building using a crane etc. (once a month) Unit 1 (Aug. 28, Sep. 11), Unit 3 (Aug. 24, Sep. 12), Unit 2 (Aug. 29) Measurement of airborne radioactivity concentration at 12 points at the site (once a week, once a month) Measurement of radioactive material fallout in the air at 11 points outside of the site (once a month) 	
	<p>Fukushima Daiichi measuring points of airborne radioactivity concentration</p> 		<p>Measurement result of aerial radiation dose rate of within 20 km radius (date: Sep. 6, 2011)</p> 

Progress Status Classified by Issues (Photos and Figures)

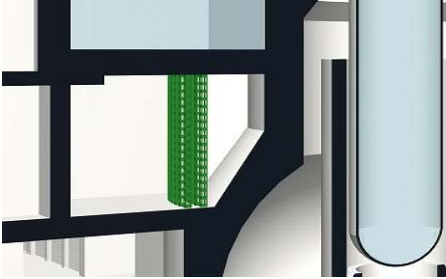

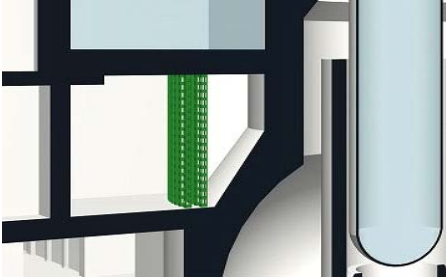
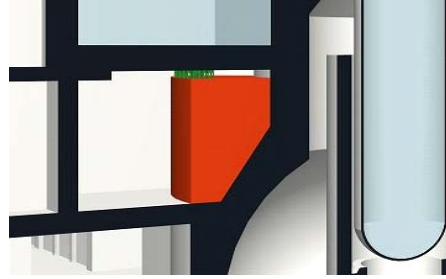








Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)
III. Monitoring/Decontamination (6) Measurement, Reduction and Disclosure	Countermeasure [60,61] Expansion, enhancement and disclosure of monitoring	[Ocean Area] <Fukushima Prefecture> ・Seawater 16 points (from Apr.17) ↓ ・Seawater 22 points (from May 5), Seabed soil 2 points (from Apr.29) ↓ ・Outside 30km radius, 7 points (succession from MEXT); within 30 km radius, at the lower layer additional 11 points; sampling frequency change (from Jun. 4) ・Expansion of seabed soil sampling (2 points → 23 points, from Jul.12) ・Stop sampling at 4 points outside 30km radius (from Sep. 1), Regular sampling of seabed soil of 25 points (once a month)	<Ibaraki Prefecture> ・Seawater 5 points (from Apr.29: once a week) ↓ from Jun. 7: twice a week ↓ from Sep. 1: once a week
		<Miyagi Prefecture> ・Seawater 6 points (from Jun.21: twice a month)	














Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)
IV. Countermeasures against aftershocks, etc. (7) Tsunami, reinforcement, etc.	Countermeasure [69] Countermeasures against tsunami Countermeasure [70] Enhancement of countermeasures against tsunami	- Temporary EDGs were moved to the upland (Apr. 15) - Securing redundancy of water injection line (by Apr. 15) - Setting fire engines on the upland (by Apr. 18) - Started installation of temporary tide barriers on May 18 and completed on Jun. 30	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Planned temporary tide barrier (white dotted line)</p> </div> <div style="text-align: center;">  <p>Cross-section of temporary tide barrier (image)</p> </div> </div> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 10px; margin-top: 20px;"> <div style="text-align: center;">  <p>Temporary tide barrier (1)</p> </div> <div style="text-align: center;">  <p>Temporary tide barrier (2)</p> </div> <div style="text-align: center;">  <p>Temporary tide barrier (3)</p> </div> <div style="text-align: center;">  <p>Temporary tide barrier (4)</p> </div> </div>











Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)
IV. Countermeasures against aftershocks, etc. (7) Tsunami, reinforcement, etc.	Countermeasure [26] Installation of supporting structure under the bottom of spent fuel pool Unit 4	<ul style="list-style-type: none"> - Soundness of structure was analyzed and evaluated - Securing the route to the area to install supporting structure (removing debris, assembling a scaffolding at hatch, removing shield blocks) - Removing obstacles at the area and installing shielding - Completion of installing steel pillars (Jun. 20) - Completion of concrete placement (Jul. 26) - Completion of pouring grout (completion of work) (Jul. 30) 	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">Outline of supporting structure</div>  <div style="border: 1px solid black; padding: 5px; text-align: center;">Removing debris</div>  </div> <div style="display: flex; justify-content: space-around; width: 100%; margin-top: 20px;">   </div> <div style="display: flex; justify-content: space-around; width: 100%; margin-top: 20px;">   </div> <div style="display: flex; justify-content: space-around; width: 100%; margin-top: 20px;">   </div> </div>
			<div style="border: 1px solid black; padding: 5px; text-align: center; margin-bottom: 10px;"> Installation of supporting structure under the bottom of spent fuel pool </div> <div style="display: flex; justify-content: space-around;">     </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> <p>Completion of steel pillar installation (Jun. 20)</p> </div> <div style="text-align: center;"> <p>Installation of concrete shuttering</p> </div> <div style="text-align: center;"> <p>Installation of reinforcing mesh</p> </div> <div style="text-align: center;"> <p>Completion of pouring grout (Jul.30)</p> </div> </div>












Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">IV. Countermeasures against aftershocks, etc.</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">(7) Tsunami, reinforcement, etc.</p>	<p>Countermeasure [72] Preparation of various countermeasures for radiation shielding</p>	<p><Utilization of Slurry> - Slurry production facility, transfer pipes, concrete pumping vehicles have been installed (May 17)</p>	<div style="background-color: #e0ffe0; padding: 5px; text-align: center; border: 1px solid black;"> Installation of equipment at Fukushima Daini Nuclear Power Station </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  <p>Overview of the facility</p> </div> <div style="text-align: center;">  <p>Slurry production facility</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <div style="background-color: #e0e0ff; padding: 5px; text-align: center; border: 1px solid black; margin-top: 10px;"> Placement of equipment at Fukushima Daiichi Nuclear Power Station </div>
		<p>- Continue maintenance of equipment - Implemented water injection training by connecting the slurry production facility and concrete pumping vehicle "Elephant-3" (Jun. 16 and 17) - Developed procedure documents and confirmed organizational structure (Jun. 30)</p>	<div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  <p>Installation of slurry plant at Fukushima Daiichi</p> </div> <div style="text-align: center;">  <p>"Elephant-3"</p> </div> <div style="text-align: center;">  <p>High pressure concrete pumping vehicle</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  <p>Transfer pipe</p> </div> <div style="text-align: center;">  <p>Preparation of equipment (sand)</p> </div> <div style="text-align: center;">  </div> </div>












Progress Status Classified by Issues(Photos and Figures)

Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)		
V. Environment Improvement (8) Living/working environment	Countermeasure [74,75] Continuing and enhancement of improvement of workers' living/working environment	- Improvement of meals, upgrade of lodging facility	<p style="text-align: center;">《 Breakfast 》</p>  <p style="text-align: center;">↓</p>  <p style="text-align: center;">Shin-Hirono Dormitory/Cafeteria</p>	<p style="text-align: center;">《 Lunch 》</p>  <p style="text-align: center;">Office of Main Anti-earthquake bldg, 2F</p>	<p style="text-align: center;">《 Dinner 》</p>  <p style="text-align: center;">Shin-Hirono Dormitory/Cafeteria</p>
			 <p style="text-align: center;">Cafeteria (Area A)</p>	 <p style="text-align: center;">Inside cafeteria (1)</p>	 <p style="text-align: center;">Inside cafeteria (2)</p>
			 <p style="text-align: center;">Inside cafeteria (3)</p>	 <p style="text-align: center;">Inside cafeteria (4) Kitchen-1</p>	 <p style="text-align: center;">Inside cafeteria (5) Kitchen-2</p>
			Shin-Hirono Dormitory		

Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation Status	Photos and figures		
V. Environment Improvement (8) Living/working environment	Countermeasure [74,75] Continuing and enhancement of improvement of workers' living/working environment	- Improvement of meals, upgrade of lodging facility	<div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="text-align: center;">  <p>Cafeteria (Area B)</p> </div> <div style="text-align: center;">  <p>Inside cafeteria (1)</p> </div> <div style="text-align: center;">  <p>Inside cafeteria (2)</p> </div> <div style="text-align: center;">  <p>Inside cafeteria (3)</p> </div> <div style="text-align: center;">  <p>Inside cafeteria (4) Kitchen-1</p> </div> <div style="text-align: center;">  <p>Inside cafeteria (5) Kitchen-2</p> </div> <div style="text-align: center;">  <p>Full view (1)</p> </div> <div style="text-align: center;">  <p>Full view (2)</p> </div> <div style="text-align: center;">  <p>Full view (3)</p> </div> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Dormitory (Entrance)</p> </div> <div style="text-align: center;">  <p>Dormitory (Corridor)</p> </div> </div> <div style="text-align: center; background-color: #e0e0ff; padding: 5px; margin-top: 10px;"> Shin-Hirono Dormitory </div> </div>		










Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)
(8) Living/working environment V. Environment Improvement	Countermeasures [74,75] Continuing and enhancement of improvement of workers' living/working environment	- Improvement of meals, upgrade of lodging facility	<div style="display: flex; flex-wrap: wrap; justify-content: space-around;"> <div style="text-align: center; margin: 5px;">  Inside (1) </div> <div style="text-align: center; margin: 5px;">  Inside (2) </div> <div style="text-align: center; margin: 5px;">  Inside (3) </div> <div style="text-align: center; margin: 5px;">  Administrative building </div> <div style="text-align: center; margin: 5px;">  Store </div> <div style="text-align: center; margin: 5px;">  Laundry facilities (Full view) </div> <div style="text-align: center; margin: 5px;">  Inside laundry facilities (1) </div> <div style="text-align: center; margin: 5px;">  Outdoor toilet </div> <div style="text-align: center; margin: 5px;">  Toilet/shower facilities (Full view) </div> <div style="text-align: center; margin: 5px;">  Inside toilet/shower facilities (1) </div> <div style="text-align: center; margin: 5px;">  Inside toilet/shower facilities (2) </div> </div> <div style="text-align: center; background-color: #e0e0ff; padding: 5px; margin-top: 10px;"> Shin-Hirono Dormitory </div>








Progress Status Classified by Issues (Photos and Figures)

Issues	Countermeasures	Implementation Status	Reference (Photos and Figures)																																																																																										
V. Environment Improvement (8) Living/working environment	Countermeasure [74] Improvement of workers' living/working environment Countermeasure [75] Continuing and enhancement of improvement of workers' living/working environment	- Installation of rest stations at the site - Expansion of rest stations at the site and restoration of original rest stations	<div style="text-align: center;">  <p>Rest stations in front of Main Anti-Earthquake Building</p> </div> <div style="text-align: center;">  <p>Outside of a rest station (1)</p> </div> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Status of rest station construction</p> </div> <div style="text-align: center;">  <p>Outside of a rest station (2)</p> </div> </div> <div style="text-align: center; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> Rest station for staff engaged in construction of the cover </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  <p>Foot-wash station</p> </div> <div style="text-align: center;">  <p>Drinking water</p> </div> </div> <div style="text-align: center; margin-top: 10px;">  <p>Inside of the rest station</p> </div> <div style="text-align: center; margin-top: 10px;">  <p>Outside of a rest station</p> </div> <div style="text-align: center; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> Rest station for an affiliated company (Toshiba) </div> </div>																																																																																										
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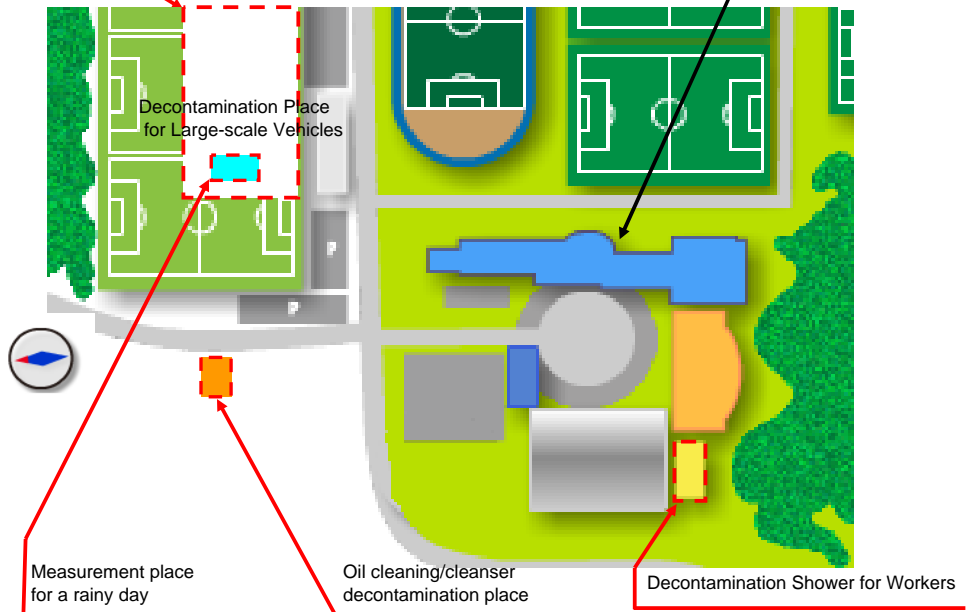



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	 <p style="text-align: center;">Entrance</p>	 <p style="text-align: center;">Inside</p>	 <p style="text-align: center;">Survey</p>  <p style="text-align: center;">Inside</p>
	 <p style="text-align: center;">Outside</p> <div style="border: 1px solid black; padding: 5px; text-align: center; margin: 10px auto; width: fit-content;"> Rest station at Main Anti-Earthquake Building (2nd phase) </div>		 <p style="text-align: center;">Outside</p> <div style="border: 1px solid black; padding: 5px; text-align: center; margin: 10px auto; width: fit-content;"> Rest station for an affiliated company (Hitachi-GE) </div>

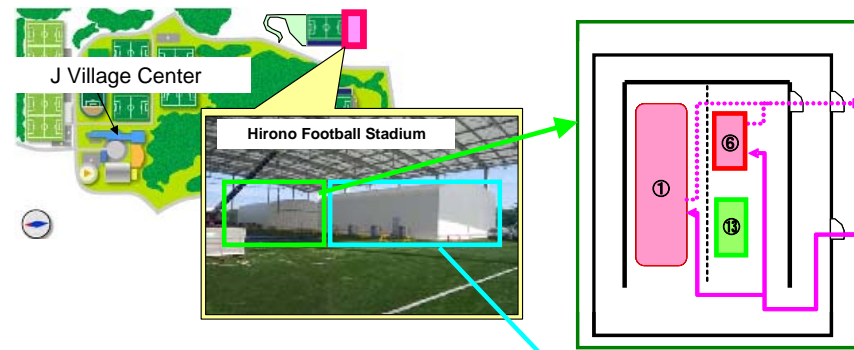

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<p style="writing-mode: vertical-rl; transform: rotate(180deg);">V. Environment Improvement</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">(9) Radiation control / Medical care</p>	<p>Countermeasure [77] Enhancement of Radiation Control</p> <p>Countermeasure [78] Continuing Enhancement of Radiation Control</p>	<p>- Improvement of protective equipment</p> <p>Protective equipment appropriate to work environment is provided in order to secure safety during radiation work.</p>	 <p>Special protective gear: Protective suit which can be expected to shield beta ray and low-energy gamma ray</p> <p><small>*Source: vendor catalogue</small></p>	 <p><small>*Source: vendor catalogue</small></p> <p>Closed-circuit oxygen breathing apparatus: It can realize a long 120-minute usage, circulating aspirated air with oxygen inside the cylinder. It is a suitable for usage in oxygen-less hazardous area.</p>
			  <p><small>*Source: vendor catalogue</small></p> <p>Half-faced mask: In case that radioactivity density is low and stable, workers put on half-face masks, not full-face, (with goggles), which enables to lighten the workload of workers.</p>	  <p><small>*Source: vendor catalogue</small></p> <p>Respiratory protective device with electric fan: The mask can blow in cleaned air which is filtered with electric fan. Internal pressure is kept higher than environmental pressure in order to reduce the risk of inhaling particulate. Also, it realizes to breathe freely and lighten loss of bodily strength.</p>
			 <p><small>*Source: vendor catalogue</small></p> <p>Hood mask; Keeping the inner pressure positive, the mask prevents influx of outer air. Continuous ventilation helps exhausting the inner humidity and prevents heat injuries.</p>	



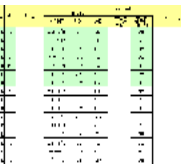


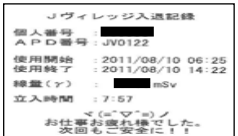
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<p>(9) Radiation Control/Medical Care</p> <p>V. Environment Improvement</p>	<p>Countermeasure [77] Enhancement of Radiation Control</p> <p>Countermeasure [78] Continuing Enhancement of Radiation Control</p>	<p>- Setting up Decontamination Place at J Village [Screening Control] Implementation of decontamination for persons who exceed the pre-set screening value for protection of contamination diffusion Change of the screening value to unify with the related authorities and local governments (from 6,000cpm to 100,000cpm) *Setting up a self-standard value (13,000cpm)</p> <p>[Decontamination Facility] As a result of radiation measurement at J Village, a decontamination place for workers and vehicles which exceed the screening value was set up.</p> <ul style="list-style-type: none"> -Decontamination Shower for Workers: Borrowing and operating 2 sets of Fire and Disaster Management Agency, and 1 set of Japanese Red Cross Society -Decontamination Place for Large-scale Vehicles: In operation since Apr. 4 A simple decontamination place was used by Apr. 3. Waste water of decontamination is stocked in a storage tank through a treatment facility. -Setting up a measurement place for rainy days: In operation since Jul. 15. -Setting up oil cleaning/cleanser decontamination place: In operation since Jul. 31. <p>[Certificate of Contamination Survey] Since setting the No-go Zone, certificates of contamination survey have been issued at J Village, Fukushima Daini Nuclear Power Station and Shin Fukushima Substation since May 7.</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Decontamination Place for Large-scale Vehicles</p> </div> <div style="text-align: center;">  <p>Decontamination Place for Large-scale Vehicles</p> </div> </div> <div style="text-align: center; margin-top: 10px;">  <p style="text-align: right;">J Village Center Building</p> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  <p>雨天時計測設 Measurement place for a rainy day</p> </div> <div style="text-align: center;">  <p>油洗浄/洗剤除染場所 Oil cleaning/cleanser decontamination place</p> </div> <div style="text-align: center;">  <p>作業員用除染シャワー設備 Decontamination Shower for workers</p> </div> </div>






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(9) Radiation Control/Medical Care V. Environment Improvement	Countermeasure [77] Enhancement of Radiation Control Countermeasure [78] Continuing Enhancement of Radiation Control	<p>- Preparation of Measurement Infrastructure for Internal Radiation by Expansion of Whole Body Counter (WBC)</p> <p>In order to implement evaluation of internal exposure for workers, etc., 13 WBCs are prepared with a building for WBC in Hirono Football Stadium.</p> <p>[Location] 1. WBC Center (Hirono Football Stadium next to the stadium building; training facility on rainy days) 2. Metropolitan Area (Tokyo Branch)</p> <p>[Number of Unit] 1. 13 sets: 1 set (in-vehicle type borrowed from JAEA-1), 12 sets (stationary type)* 2. 1 set: 1 set (in-vehicle type borrowed from JAEA-2) * Under arrangement (4 sets transferred from 1F/2F, 7 sets newly purchased and 1 set borrowed from another company)</p> <p>[Operation Schedule] 1. WBC Center (Hirono Football Stadium next to the stadium building; training facility on rainy days) -By Sep. 17 (actual achievement) In operation: 1 set (in-vehicle type borrowed from JAEA-1), and 5 sets (stationary type) -By early October Plan to operate: 6 sets newly purchased (stationary type) Under arrangement: 1 set borrowed from another company (stationary type) 2. Metropolitan Area: Tokyo Branch In operation: 1 set (in-vehicle type borrowed from JAEA)</p>	 <p style="text-align: center;">Operation Schedule of Whole Body Counters</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="text-align: center;">①</td> <td>Operation since Jul. 11</td> <td>In-vehicle type borrowed from JAEA</td> </tr> <tr> <td style="text-align: center;">②</td> <td>Operation since Jul. 13</td> <td>Stationary type transferred from 2F</td> </tr> <tr> <td style="text-align: center;">③</td> <td>Operation since Aug. 5</td> <td>Stationary type transferred from 1F</td> </tr> <tr> <td style="text-align: center;">④</td> <td>Operation since Aug. 6</td> <td>Stationary type transferred from 1F</td> </tr> <tr> <td style="text-align: center;">⑤</td> <td>Operation since Aug. 12</td> <td>Newly purchased</td> </tr> <tr> <td style="text-align: center;">⑥</td> <td>Operation since Jul. 25</td> <td>Newly purchased</td> </tr> <tr> <td style="text-align: center;">⑦ ⑧ ⑨ ⑩ ⑪ ⑫</td> <td>Will be gradually operated after late Sep</td> <td>Newly purchased</td> </tr> <tr> <td style="text-align: center;">⑬</td> <td>Schedule being coordinated</td> <td>Borrowed from another company</td> </tr> </tbody> </table>	①	Operation since Jul. 11	In-vehicle type borrowed from JAEA	②	Operation since Jul. 13	Stationary type transferred from 2F	③	Operation since Aug. 5	Stationary type transferred from 1F	④	Operation since Aug. 6	Stationary type transferred from 1F	⑤	Operation since Aug. 12	Newly purchased	⑥	Operation since Jul. 25	Newly purchased	⑦ ⑧ ⑨ ⑩ ⑪ ⑫	Will be gradually operated after late Sep	Newly purchased	⑬	Schedule being coordinated	Borrowed from another company
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<p>- Proper Treatment of Radioactive Waste [Liquid Waste (Decontamination Liquid Waste)] Decontamination liquid waste is collected in J Village and purified by a purification facility The purified liquid waste is planned to be used for decontamination water after confirmation of contamination density. * Installation and operation of the purification facility: from Apr. 4, Reuse: Within October (planned)</p> <p>[Solid Waste] Waste of protection clothes, etc. used in J Village and other screening sites in Fukushima Prefecture, etc. are kept in J Village. The wastes were distinguished to combustible, fire-retardant and non-combustible type, and kept in special metal containers.</p>																											







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<p style="writing-mode: vertical-rl; transform: rotate(180deg);">V. Environment Improvement</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">(9) Radiation control / Medical care</p>	<p>Countermeasure [77] Enhancement of radiation control</p> <p>Countermeasure [78] Continuing enhancement of radiation control</p>	<p>- Reinforced radiation controlling. Pocket dosimeters had been lent through signing in a recording book and entered the data manually into database, but worker identification cards with barcodes have been provided since Jun. 8 so that it becomes possible to enter the data directly into the database with barcode readers.</p> <p>From Aug. 16, radiation exposure data are printed out in receipts. We are planning to introduce a system which can automatically acquire individual radiation exposure data of workers of J-village.</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p style="text-align: center;">Immediately after the Earthquake</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>1. Lending Alarm Pocket Dosimeter and signing in a recording book</p>  <p>- Lending pocket dosimeter and signing the names, time, etc. in a recording book to manage personal in-and-out.</p> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>2. Working, carrying pocket dosimeter and measuring</p>  <p>- Measurement with pocket dosimeter for each time</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>3. Entering measurement results in the book and PC</p>  <p>- Entering data of time, radiation exposure, etc. in the book or PC when leaving the area</p> </div> </div> <div style="width: 50%;"> <p style="text-align: center;">After improvement (from Jun)</p> <div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p style="text-align: center;">Main Anti-Earthquake Building</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Control workers in-and-out of the site</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Measure personal radiation dose</div> <ul style="list-style-type: none"> - Lending pocket dosimeter - Record Barcodes (from Apr. 14) - Notification of radiation exposure data Receipts (from Aug. 16)  </div> <div style="text-align: center; margin-bottom: 10px;"> <p>Working Area</p> </div> <div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">J-Village</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Control workers in-and-out of the site</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Measure personal radiation dose</div> <ul style="list-style-type: none"> - Lending pocket dosimeter - Record Barcodes (from Jun. 8) - Notification of radiation exposure data Receipts (from Aug. 16) </div> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <p>Workers' ID</p>  </div> <div style="text-align: center;"> <p>Receipt</p>  </div> </div>

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<p style="text-align: center;">(9) Radiation control / Medical care</p> <p style="text-align: center;">V. Environment Improvement</p>	<p>Countermeasure [79] Improvement of medical system</p> <p>Countermeasure [80] Continuing improvement of medical system</p>	<p>- ER for Unit 5/6 established for the temporary use during the summer only is now used as a permanent facility, staffed by emergency specialists continuously after September.</p> <p>- Nurse(s) and radiation technologist(s) have also been allocated, though on irregular basis for the time being.</p> <p>- Enhancement of medical facilities and enforcement of decontamination facilities have met the conditions to transport patients promptly; it enabled us to transport seriously ill patients who are not contaminated to hospitals directly.</p> <p>- Doctor(s) from University of Occupational and Environmental Health, Japan or Rosai Hospitals (hospitals under Japan Labor Health and Welfare Organization) have been allocated at J Village to enforce health management for workers.</p>	<div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%; text-align: center;">  <p>Operation check of medical devices (doctor and nurse)</p> </div> <div style="width: 50%; text-align: center;">  <p>Inventory check of medial drugs (doctor and nurse)</p> </div> <div style="width: 50%; text-align: center;">  <p>Radiation dose measurement in the room (radiation technologist)</p> </div> <div style="width: 50%; text-align: center;">  <p>ER for Unit 5/6 (medical space)</p> </div> <div style="width: 100%; text-align: center;">  <p>Training of screening and decontamination of a patient (in front of the entrance of the service bldg of Unit 5/6)</p> </div> </div>

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<p style="writing-mode: vertical-rl; transform: rotate(180deg);">V. Environment Improvement</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">(10)Staffing Plan</p>	<p>Countermeasure [85] Systematic staff training and personnel allocation</p>	<p>-Conducting training for staffs engaged in radiation related work, who will be in great demand.</p> <p>-TEPCO has been conducting "radiation survey staff training" targeted for employees and TEPCO group companies' employees and has already trained approx. 2,500 personnel.</p> <p>-The government has been conducting "radiation survey staff" development trainings (five times for approx. 140 people in total up to Sep. 9) and "radiation protection staff" development trainings (for approx. 10 people from Aug. 8 to 12). They will train 250 personnel.</p> <p>-According to affiliated companies needs, launched a new framework of looking for workers widely through Japan Atomic Industrial Forum (JAIF).</p>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; justify-content: space-around; width: 100%;">   </div> <div style="border: 1px solid black; padding: 5px; margin: 5px 0; width: 80%; text-align: center;">Radiation survey staff training course (at training center, TEPCO)</div> <div style="display: flex; justify-content: space-around; width: 100%;">   </div> <div style="border: 1px solid black; padding: 5px; margin: 5px 0; width: 80%; text-align: center;">Radiation survey staff development training course (at J Village)</div> <div style="display: flex; justify-content: space-around; width: 100%;">   </div> <div style="border: 1px solid black; padding: 5px; margin: 5px 0; width: 80%; text-align: center;">Radiation protection staff development training course (at JAEA)</div> </div>