Iss	ues	Countermeasures	Implementation Status	Photos and figures
I. Cooling	(1) Cooling the F		Measurement of radiation dose, Enter into the building (May 9)	Checking inside of the reactor buildings by Packpot  Improvement of work environment by local exhauster
	Reactors	Countermeasure [11] Inject nitrogen gas into the PCV	Implementing from April 6	Nitrogen supply apparatus  ***********************************

Issue	es	Countermeasures	Implementation Status	Photos and figures
I. Coolir	(1) Cooling the Reactors	Countermeasure [13] Recover heat exchange function for the reactor	- Start building secondary heat exchange line (May 13)	Demolished and removed debris at the carry-in gate for large stuff, which would be obstacle for installation of alternative facility (from May 10 to May15)  PCV  RPV  RPV  RPV  RPV  RPV  RPV  RPV

lss	Issues		Countermeasures	Implementation Status	Photos and figures		
			Countermeasure[14] Continue cooling by current minimum water injection rate		Image of flooding PCV  Inspection of water gauge		
			Countermeasure[16] Seal the leakage location in the PCV		Flooding to the top of active fuel  Water injection to RPV  Fuel		
I. Cooling	(1) Cooling the	Unit 1	Countermeasure [9] Flood the PCV up to the top of active fuel		S/ S/		
g	Reactors		Countermeasure [12, 45] Reuse of processed waters reactor coolant	- site survey (April 26, May 11) - construction of injection line (May 21) - operation will start when accumulated water process starts	原子炉建屋(R/B) ターピン建屋(T/B)		
			Countermeasure [12, 45] Establishment of circulating injection cooling	continue to Step 2	クローズドサイクル 済染水処理設備 ボンブ		
					System outline of water reuse as reactor coolant by processing accumulated water		

Iss	sues		Countermeasures	Implementation Status		Photos and figures
				Measurement of radiation dose, Preparation to enter into the building		
				Installed piping to the entrance of the building (May 7)		Countermeasure to seal the damaged location in the PCV
			Countermeasure [13] Recover heat exchange function for the reactor	-site survey completed (May 8)		R/B
	(1) C	Unit 2	Countermeasure[6] Consideration of sealing the leakage location in the PCV	deration of laboratory laboratory	T/B Fill grout material	
I. Cooling	Cooling the R		Countermeasure[16]	- Construction will start after checking the feasibility of sealing method	ventilation water outflow	
	eactors		Countermeasure [9] Flood the PCV up to the top of active fuel			
			Continue cooling by current minimum water injection rate.	- Injecting water to the extent that enable to store leaked water		Excavate the 1st floor of R/B and fill grout in the torus
			45] Reuse of processed	-Implementing injection line work (ongoing from April 9) -In service with the launch of accumulated water treatment		
			Countermeasure [12, 14, 45] Establishment of circulating injetion cooling	Continue to Step 2		

Iss	ues		Countermeasures	Implementation Status	Photos and figures
				-Removal of debris, Measurement of radiation dose, Preparation to enter into the building	Demolished and removed debris at the carry-in gate for large stuff, which would be obstacle for installation of alternative facility (from May 9
				Installed piping to the entrance of the building (May 11)	to the end of May)
			Countermeasure [13] Recover heat exchange function for the reactor	-Installation work of heat exchanger will start after the improvement of work environment	Broken pillars at the carry-in gate for large for large stuff in Unit 3
			Countermeasure[6] Consideration of	-Will confirm the leakage status/temperature etc and choose	unmanned facilities for debris removal
			sealing the leakage location in the PCV	countermeasure [16] or [14]	Internal Survey talon brokk 90
	(1) Cooling the		Countermeasure[16] Seal the leakage		(Sweden)
I. Cc	oling	Unit	location in the PCV		
Cooling	the Reactors	nit 3	Countermeasure [9] Flood the PCV up to the top of active fuel		Demolition of broken pillars image of demolition nibbler
	ors		Countermeasure[14] Continue cooling by current minimum water injection rate.		Removal of debris brokk 330 (Sweden) bob cat (USA)
			Countermeasure [12, 45] Reuse of processed water as reactor coolant	-Implementing injection line work (ongoing from April 16) -In service with the launch of accumulated water treatment	Vehicle to control unmanned facilities
			Countermeasure [12, 14, 45] Establishment of circulating injection cooling	Continue to Step 2	wireless control vehicle  wired control vehicle

# Progress status of cooling (Spent Fuel Pool) (Description)

es		Countarmageurae	Implementation etatue	Photos and figures
		Countermeasures	Implementation status	Photos and figures
(2) Spent Fuel Pools		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 (arm, water injection operation)	Image of remote control operation of concrete pumping vehicle
				on antenna Observatory
		cooling system	-Radiation reduction by flushing and shielding facility(from May 11 to May 15)	RTP開催 PSTR建度 PSTR建度 PSTR建度 Cooling tower RTS P Cooling function plate type heat exchanger
	Spent Fuel	Unit 1 Spent Fuel	Continuation of water injection by "Giraffe", etc  Countermeasure[24] Restoration of normal cooling system  Countermeasure[25,27] Install heat	Continuation of water injection by "Giraffe", etc  Continuation of water injection by "Giraffe", etc  Countermeasure [24] Restoration of normal cooling system  Countermeasure [25,2] Install heat  Countermeasure [25,2] -Manufacturing heat exchanger  Tipical durability of hoses  -Measures to reduce radiation dose: switch to remote-controlled operation (arm, water injection operation)  Countermeasure [24] -Radiation measurement by ycamera and robot (from April 30 to May 6)  -Radiation reduction by flushing and shielding facility (from May 11 to May 15)  Countermeasure [25,2] -Manufacturing heat exchanger

# Progress status of cooling (Spent Fuel Pool) (Description)

Iss	sues		Countermeasures	Implementation status	Photos and figures
		Unit 2	Install heat exchanger	-Manufacturing heat exchanger -Removed debris in the working area (May 11) -Installation work is under way(from May 16 to the end of May)	Status of debris in Radwaste Building of Unit 2
I. Cooling	(2) Spent Fuel Pool	Unit 3	injection by "Giraffe"	-Reliability improvement: enhanced durability of hoses -Measures to reduce radiation dose: switch to remote-controlled operation	Lifting up sampled water from SFP
			restoration of normal cooling system	-Confirmation of power system stability through water level measurement by "Giraffe", etc(from May 8 to May 15) -Water injection through normal cooling system(ongoing from May 16)	
				Countermeasure[25,2 7] Install heat exchanger	-Manufacturing heat exchanger. installation work will start after it is transferred to the site.

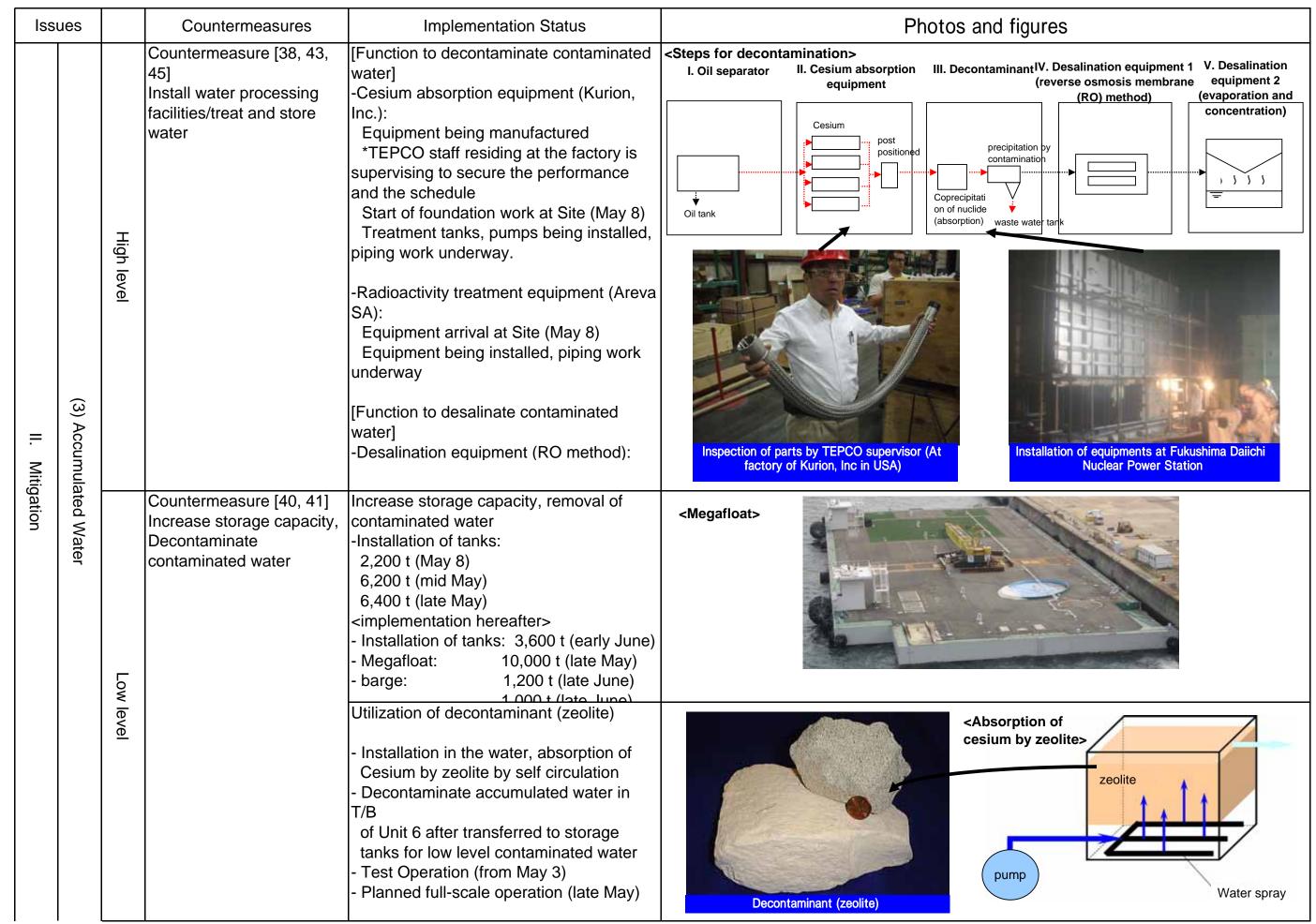
# Progress status of cooling (Spent Fuel Pool) (Description)

lss	Issues		Countermeasures	Implementation status	Photos and figures
	(2) S		Countermeasure[22] Continuation of water injection by "Giraffe", etc  Countermeasure[24] Restoration of normal cooling system  -Reliability improvement: enhanced durability of hoses -Measures to reduce radiation dose: switch to remote-controlled operation  -Implementing site survey (from April 19 to the end of May) -Removing debris. restoration work will be started after the removal.	Water injection by "Elephant No. 2" in Unit 4	
I. Cooling	Spent Fuel Pool	Unit 4		be started after the removal.	
					Status of stairs connecting 2nd and 3rd floor in Unit  Status of SFP inside

# Implementation status of mitigation (Accumulated Water) (Description)

Iss	ues		Countermeasures	Implementation Status	Photos and figures
			Countermeasure [37, 39, 42] Securing places to store contaminated water	[Transferring into Centralized Waste Treatment Facility]  -Process Main Building:    After conducting waterproof check etc., transport from vertical shafts in Unit 2 started. (April 19) -High-temperature Incineration Building: Now conducting waterproof check etc.	Transferring into Centralized Waste Treatment Facility> Vertical Shafts at Unit 2 Hatch at Unit 3 T/B at Unit 1 T/B at Unit 2 T/B at Unit 3 T/B at Unit 4 Proces s Main Buildin Figh at Unit 2 R/B at Unit 3 R/B at Unit 4 Proces s Main Buildin High-temperature Incineration Buildina
II. Mitigation	(3) Accumulated Water	High level		[Installation of tanks]  -For receiving treated water approx. 11,000t (May 10) <implementation hereafter=""> -For receiving treated water approx. 28,000t (late June) land preparation for underground tanks (from May 16)</implementation>	Underground tank for highly contaminated water  Tanks to receive treated water
	ater		Countermeasure [64] Mitigation of contamination in the ocean	<ul> <li>Setting up silt fence</li> <li>Setting up circulating purification system (end of May)</li> <li><implementation hereafter=""></implementation></li> <li>Planning for setting up steel sheet pile</li> </ul>	
			Countermeasure [65] Isolation of high-level radioactive water	- closure of Unit 4 turbine vertical shaft (April 6) - closure of Unit 2&3 turbine vertical shafts (end of May)	

### Implementation status of mitigation (Accumulated Water) (Description)



# Progress Status of Mitigation (Groundwater) (Description)

lss	ues	Countermeasures	Implementation Status	Photos and Figures
		Countermeasure [66] Examination of mitigation measures of groundwater contamination	- Implementation of closing work for northern vertical shaft of sea water pipe on Unit 2	
				Input of crashed Concrete Mortar placement
II. Mitigation		Countermeasure [67] Implementation of mitigation measures of groundwater contamination	-Restoration of sub drain pump (mid June) - Sub drain management along with expansion plan of storage/processing facility	wall to shield  R/B  T/B  image of measure to shield groundwater
		Countermeasure [68] Examination of shielding methods of groundwater	- Considering underground water flow based on seepage analysis <next step=""> choose most appropriate method to shield underground water by evaluating water shield effect, earthquake resistance, durability</next>	Seepage analysis model  Elevation (O.P.)  20 18 18 14 12 10 8 6 4 2 0   example: result of Seepage analysis (underground water level)

### Progress status of mitigation (Atmosphere/soil) (Description)

ssues Countermeasures	Implementation Status	
Countermeasure [52] Dispersion of inhibitors  (5) Atmosphere / Soil	Continue dispersion of inhibitor  - Test dispersion of inhibitors in the Power Station (from April 1to April 25)  - Full-dress dispersion of inhibitors in the Power Station (from April 26)  (Record of dispersion of inhibitors up to May 12)  - In the Power Station (flat land and slope):  Dispersion in approx. 105,000 m2  - Around Units 1 to 4:  Dispersion in approx. 49,000 m2 <plan for="" further="" implementation="">  - In the Power Station (flat land and slope):  Dispersion in approx.420,000 by the end of June  - Around Units 1 to 4:  Dispersion in approx. 12,000 m2 by the end of May</plan>	

#### Photos and figures



Dispersion of inhibitors in the Power Station (flat land)



Dispersion of inhibitors around turbine buildings of Units 1 to 4



Dispersion of inhibitors in the Power Station (flat land)



Dispersion of inhibitors in the Power Station (flat land)



Dispersion of inhibitors in the Power Station (slope)



After dispersion of inhibitors in the Power Station

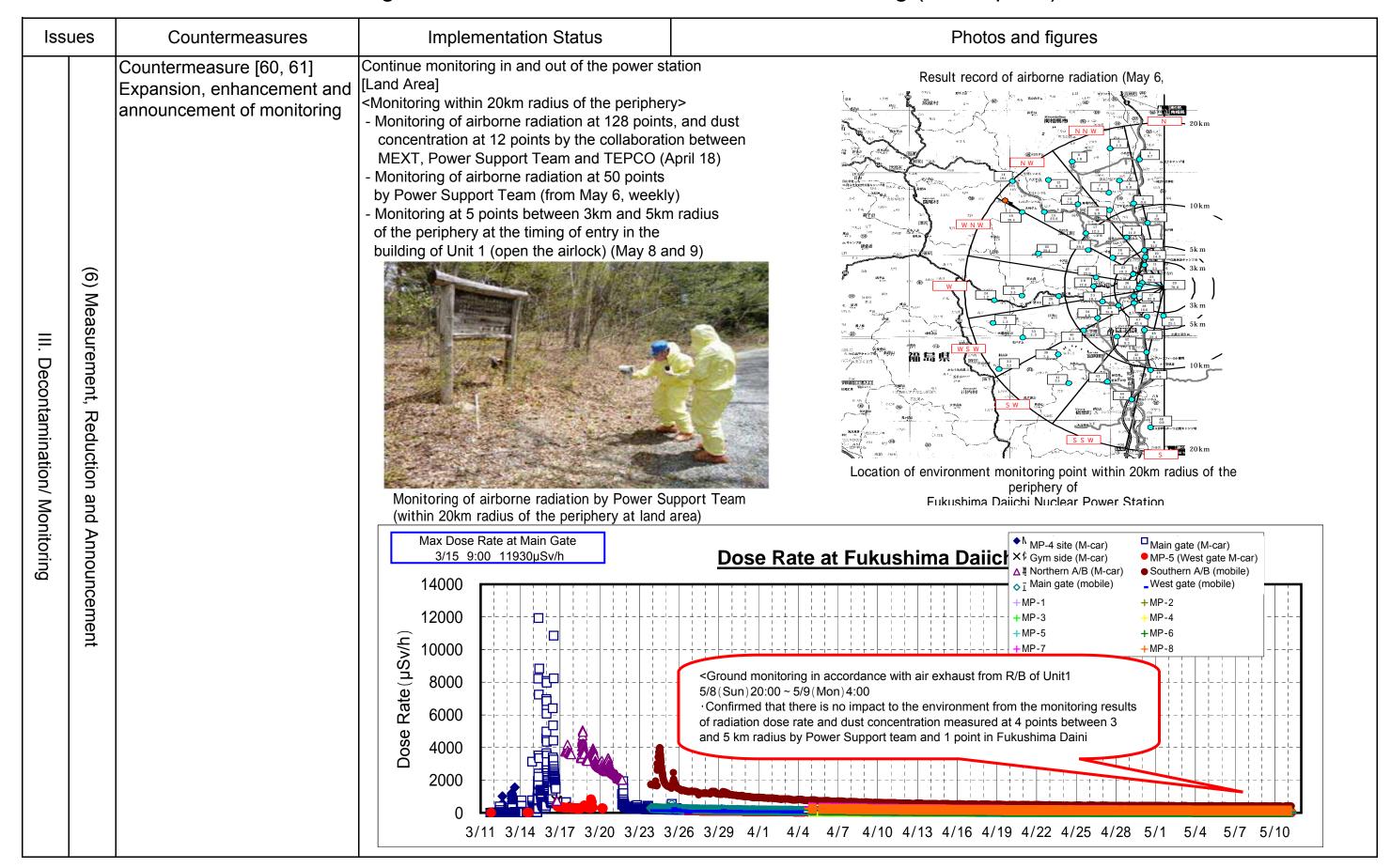
# Progress status of mitigation (Atmosphere/ soil) (Description)

Issu	ues	Countermeasures	Implementation Status	Photos and figures
II. Mitigation		Countermeasure [53] 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, bulldozer). (from April 6) - The debris at highly-radioactive area(around the turbine buildings of Units 1 to 4) are removed in preference. (Record of removing debris as of May 10) - 127 containers* of debris are removed. *: (Capacity: 3.2*1.6*1.1m, Approx. 4m3) <plan for="" further="" implementation=""> We will finish removing the debris outside in the highly-radioactive area by the end of May.</plan>	Removing debris with remote-controlled heavy machinery (Container: 3.2*1.6*1.1m, Approx. 4m3)  Before removal Around turbine building of Unit 1  After removal  Temporary containers for collecting debris

# Progress status of mitigation (Atmosphere/ soil) (Description)

Iss	ues	Countermeasures	Implementation Status	Photos and figures
II. Mitigation	(5) Atmosphere	Countermeasure [54] Installation of reactor building cover	(Unit 1) - Start of preparation work * (from May 13) *   - Maintenance of road for crane - Creation of slope for moving of crane - Maintenance of Shallow Draft Quay	Image of install of reactor building cover for Unit 1
ח	/ Soil		(Unit 3,4) - On the process of designing	Preparation work for installing reactor containment cover for Unit1

#### Progress status of decontamination and monitoring (Description)



# Progress status of decontamination and monitoring (Description)

Issu	ıes	Countermeasures	Implementation Status	Photos and figures
		Countermeasure [60, 61] Expand/ enhance monitoring and announce	[Ocean Area] <fukushima prefecture=""> - Monitoring of sea water at 16 points (as of April 17) -&gt; Increase the number of the collecting points to 22 for sea water(from May 5) and 2 points for marine soil(from April 29) -Fukushima Prefecture Sampling po</fukushima>	
III. Decontamination/ Monitoring	(6) Measurement, Reduction and Announcement		Sea water sampling points 20 Points Sea water/seabed soil sampling points 2  Fukushima Daiichi Daini  Fukushima Daini	

# Progress status of countermeasures against aftershocks, etc. (Description)

lss	Issues (7)		Countermeasures	Implementation Status	Photos and figures		
	(7) Tsunami, reinforcement, etc.			- Distribution switchboard and temporary DG ware moved to the upland (April 15) - Multiplication of water injection line (until April 15) - Setting fire engines in the upland (until April 18)	waterproof sheet container filled with stones 使政防潮堤 設置予定範囲 仮設防潮堤町面図(イメージ) 保証 planned temporary tide barrier (white dotted line)		
Countermeasures against aftersh			Countermeasure [70] Enhancement of countermeasures against tsunami	- Installation of temporary tide barrier (target: middle of June)	Example of construction		
rshocks, etc.		Unit	supporting structure under the bottom of	<ul> <li>Soundness of structure was analyzed and evaluated</li> <li>Removing debris</li> <li>After removing the debris, installation work starts (around May 23)</li> </ul>	Supporting		
		nit 4			Removing debris  Before the work  After the work		

## Progress status of countermeasures against aftershocks, etc. (Description)

ISS	sues	Countermeasures	Implementation Status	Photos and figures
		Preparation of	<application of="" slurry=""> - Pipe work completed, concrete pumping vehicle arranged (May 17)</application>	Practical training at Fukushima Daini  Full view of the plant  Slurry production facility (mobile batcher plant)
IV. Countermeasures against	(7) Tsunami, reinforceme	Countermeasure [73] Continuation of		Situation of pipe laying  Material/equipment preparation at Fukushima Daiichi
against aftershocks, etc.	ment, etc.	various countermeasures for radiation shielding		Preparation of material  Situation of pipe laying
				Preparation of material  "Elephant No.3"

### Progress status of environment improvement (Description)

Issu	ues	Countermeasures	Implementation Status	
V. Environmer	(8) Life/work	Countermeasure [74] Improvement of life/work environment of workers	- Improvement of meals, Upgrading of lodging facility - Security of daily life water - Installation of rest station at the site (approx. 600m2)	
Environment Improvement	(8) Life/work environment	Countermeasure [75] Continuation and enhancement of improvement of life/work environment of workers	<ul> <li>Installation of temporary dormitory</li> <li>Increasing available amount of daily life water</li> <li>Expansion of rest station at the site and restoration of existing station</li> </ul>	

#### Photos and figures



Rest station (in front of Main Anti-Earthquake Building)

Area space: 270m2 Capacity 50 personnel



entrance of main anti earthquake building (unit house to manage inout of workers)



radiation measurement inside the building



entrance of main anti earthquake building (view from inside)