

Progress Status of Sub-drain Purification Test

Feb. 27, 2012

Tokyo Electric Power Company

Countermeasures against Groundwater Inflow into the Reactor Buildings etc.

- Sub-drain equipment is installed in order to prevent groundwater around building from flowing into the building, drawing groundwater via operation of sub-drain pump and balancing groundwater level.
- Lowering groundwater level by drawing sub-drain water is a strong measure to prevent groundwater from inflowing into the building.



Inside of the Sub-drain pit

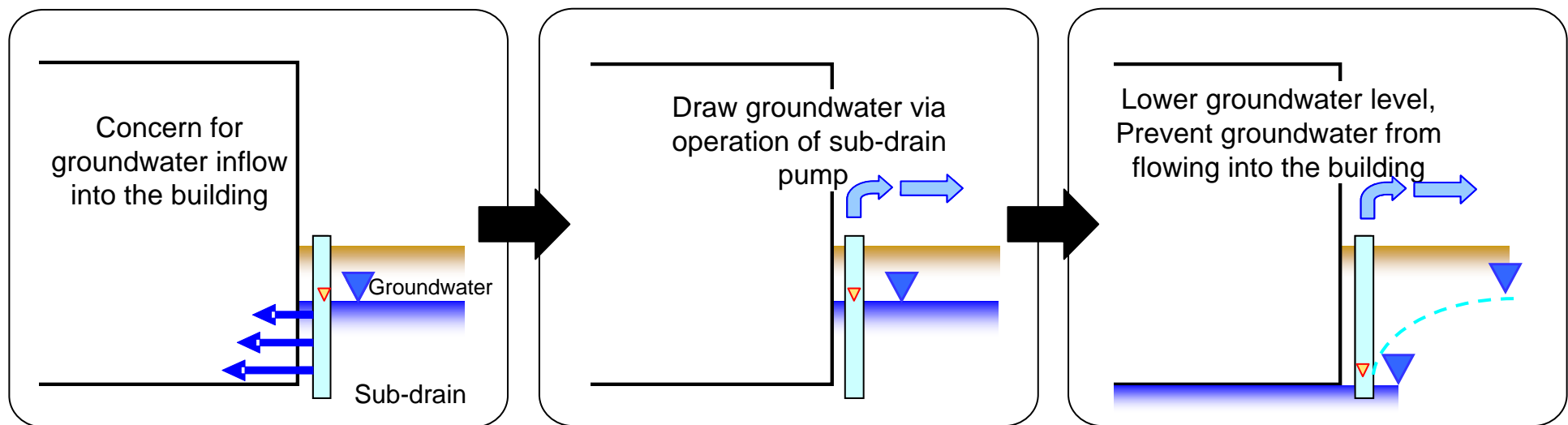


Image figure

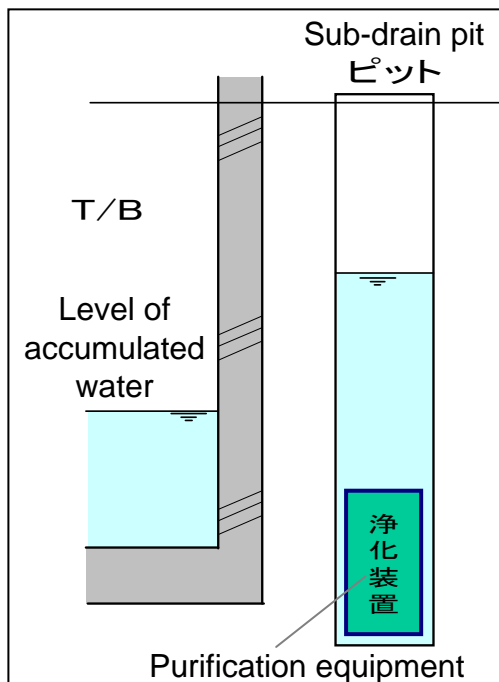
Sub-drain Water Purification Test

- Some sub-drain pit lids were opened by tsunami, and then contaminated substances on the ground flowed into the pit with rain. Due to this, we confirmed a little water contamination in the pit.
- Prior to the re-operation of sub-drain device, we need to purify accumulated water in the sub-drain pit. “Purification test” and “Drawing up test” are planned.

(Purification test procedure)

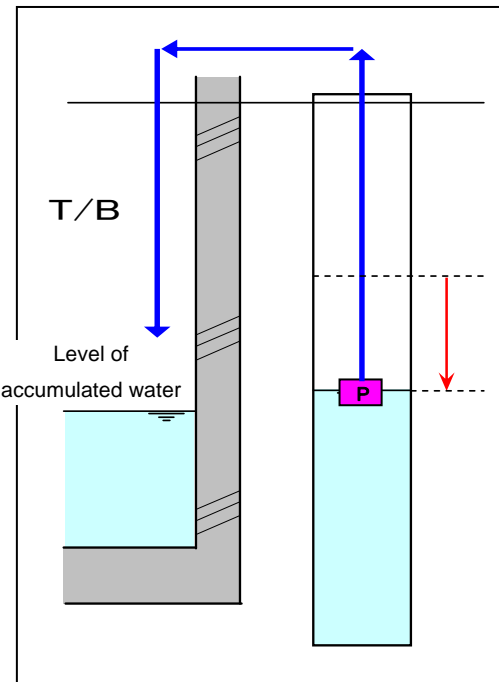
Purification test

Purify sub-drain via purification equipment and confirm below detection limit.

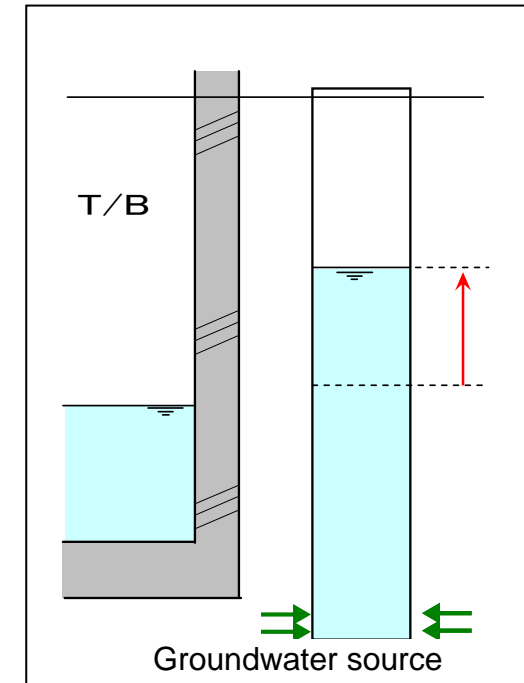


Drawing up test

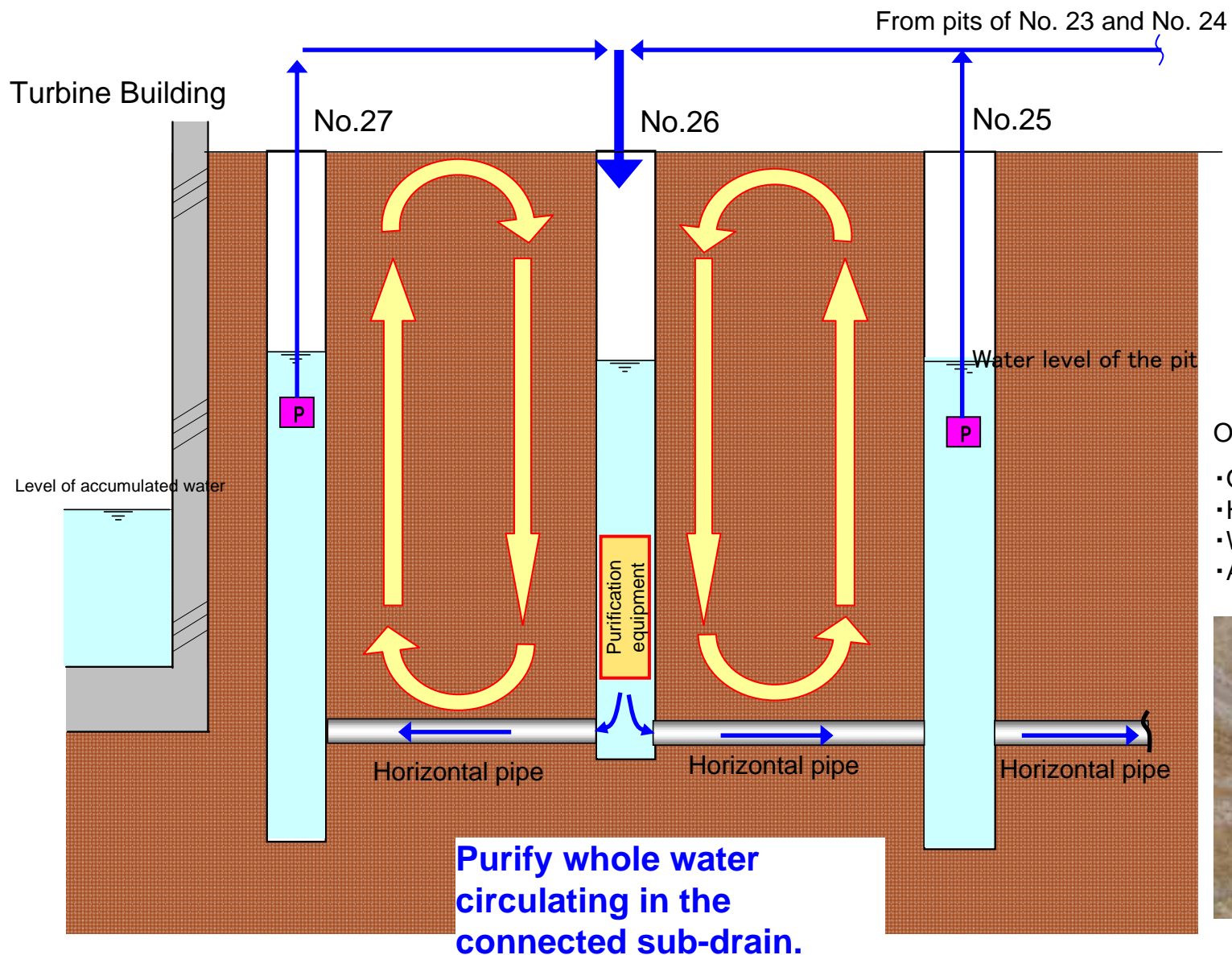
Lower accumulated water in the pit to the level of that in the T/B. (Draw up into the T/B)



Confirm water quality of groundwater source



Sub-drain Water Purification Methods



Overview of purification device

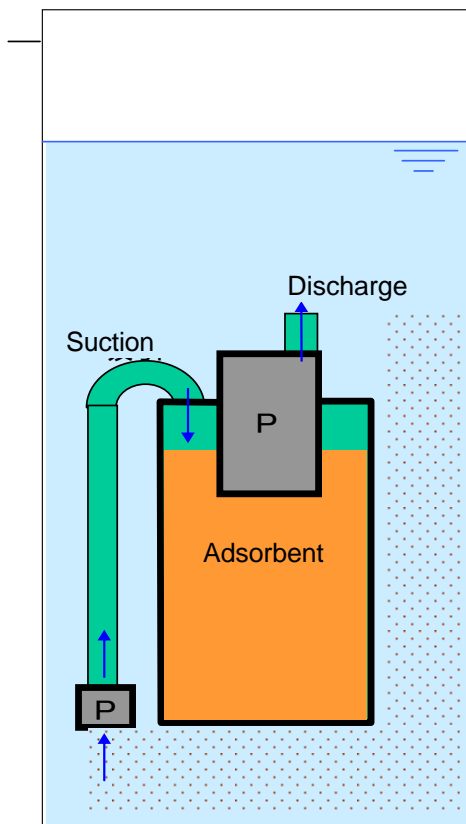
- Outside diameter: 457mm (18 inch)
- Height: 1829mm
- Watertight weight: 422kg
- Adsorbent: active carbon, resin



The pit Inside

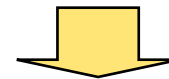
Sub-drain Purification Test Status

- Not able to purify sub-drain water at Unit 2 below detection limit
- Because we confirmed muddiness in the water at Unit 2 pit and there is a possibility that purification equipment can not work sufficiently due to suspended solids, change purification equipment structure and implement purification test with installation of coagulation settling equipment for suspended matter.
- Purified the sub-drain water at Unit 4 below detection limit (under follow-up while continuing purification test)
- Because the sub-drain water at Units 5 and 6 is almost not contaminated, we are implementing “drawing up test” of Sub-drain.



▽Ground

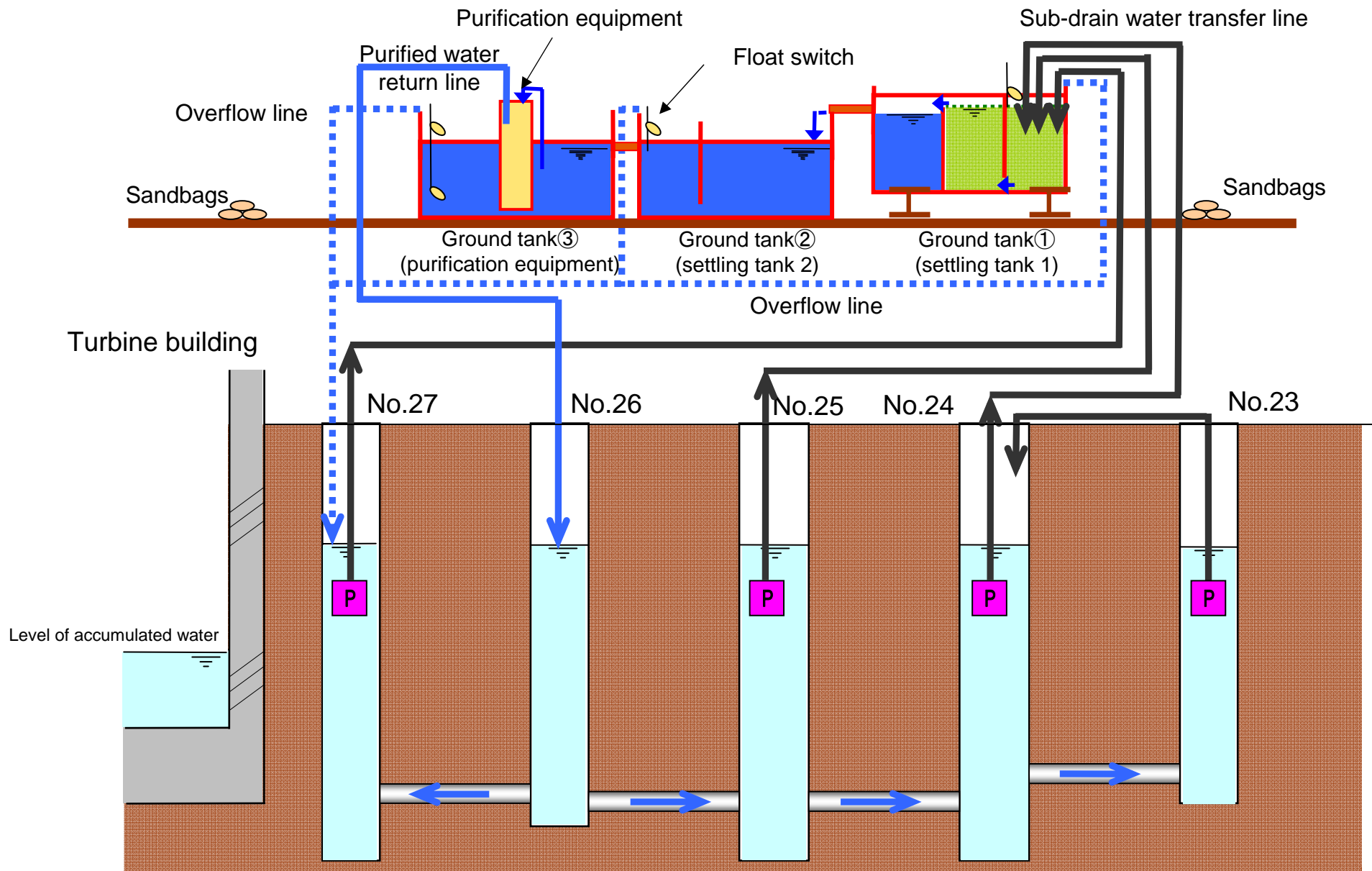
- Adsorbent of purification equipment can process water-dissolved Cs, but doesn't have capability of adsorbing Cs adhered to suspended materials etc.
- Based on the evaluation result, there is a view that radiation adhered to suspended materials would affect.



Implementation of purification test after suspended solid elimination

	Unit 2				Unit 4			
	No.23 pit		No.26 pit		No.55 pit		No.56 pit	
	Before Purification	Under Purification	Before Purification	Under Purification	Before Purification	Under Purification	Before Purification	Under Purification
	Oct.21,2011	Jan.18,2012	Oct.25,2011	Jan.18,2012	Jan.20,2012	Feb.3,2012	Jan.20,2012	Feb.3,2012
Cs-134 (Bq/L)	37,000	370	7,000	110	49	<7.2	13	<7.2
Cs-137 (Bq/L)	46,000	500	9,600	160	61	<8.6	18	<8.5
I-131 (Bq/L)	<65	<6.2	<67	<4.8	<3.9	<2.5	<2.9	<2.7

Sub-drain Purification Test (after Unit 2 system change)



Progress Status of Sub-drain Purification Test


- Units 1-4: Sequentially implement “purification test” and “drawing up test” (improve purification equipment as necessary)
- Units 5 and 6: Implement “drawing up test”

	Jan.			Feb.			Mar.		
Sub-drain at Units 1-4					Installation work of purification equipment		Purification test/ drawing up test/ water quality sampling/ evaluation		
Unit 1									
Unit 2	Purification test		Consideration/ work of purification equipment improvement			Purification test/ drawing up test/ water quality sampling/ evaluation			
Unit 3		Work to lower sub-drain ambient dose/ installation work of purification equipment					Purification test/ drawing up test/ water quality sampling/ evaluation		
Unit 4		Installation work of purification equipment	Purification test		Confirm purified water quality/ work to improve purification equipment		Purification test/ drawing up test/ water quality sampling/ evaluation		
Sub-drain at Units 5 and 6			Installation work of piping/ tanks			Drawing up test/ water quality sampling/ evaluation			

Unit 2 Sub-drain Purification Test (provisional report)

- Started purification test via improved equipment at Unit 2 Sub-drain (ongoing)
- Sampling results after 12 hours operation are the following.

		Bq/L				
		1F Unit 2 Sub-drain No. 23	1F Unit 2 Sub-drain No. 24	1F Unit 2 Sub-drain No. 25	1F Unit 2 Sub-drain No. 26	1F Unit 2 Sub-drain No. 27
Feb. 21	Cs-134	570	250	370	500	740
	Cs-137	780	340	520	710	1100
	I-131	<7.2	<5.2	<5.5	<6.5	<8.0


 12 hours operation

Feb. 24	Cs-134	200	340	330	140	520
	Cs-137	270	460	460	200	760
	I-131	<5.1	<6.1	<6.0	<4.0	<7.0

Units 5 and 6 Sub-drain Purification Test (provisional report)

- Started drawing up test at Units 5 and 6 Sub-drain (ongoing)
- Sampling result at No. 96 is the following.

Bq/L

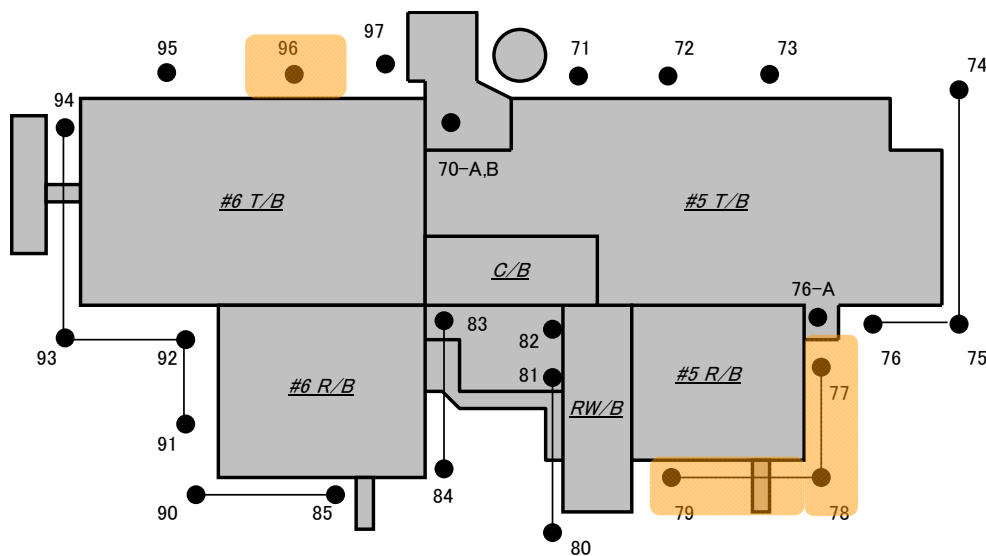
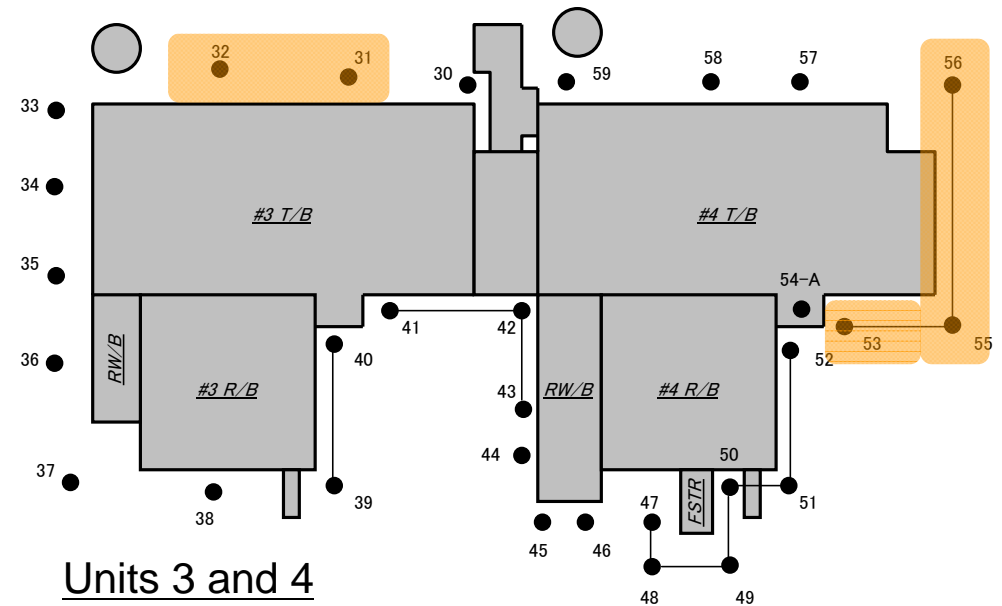
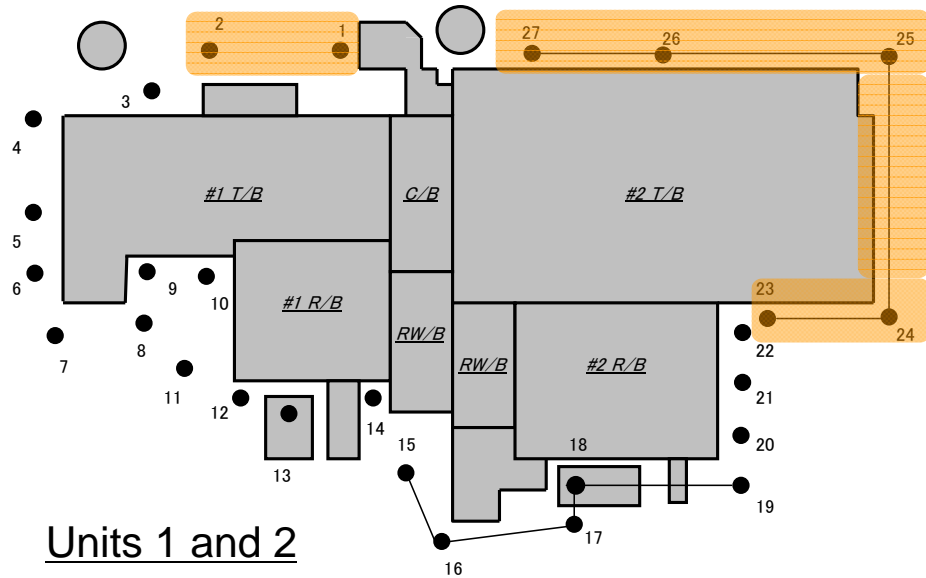
		1F Unit 6 Sub-drain No. 96
Feb. 24	Cs-134	42
	Cs-137	64
	I-131	<3.7



After drawing up test

Feb. 24	Cs-134	8.7
	Cs-137	<9.4
	I-131	<3.3

<Ref> Layout of Sub-drain Pits



- Units 1-4: Implement purification test/pump restoration from T/B side, relatively easy to restore.
- Units 5 and 6: Sub-drains are nearly sound. Test target is a point of each at R/B and at T/B.

 Sub-drain targeted for tests