

Progress Status of Groundwater Bypass Construction and Future Schedule

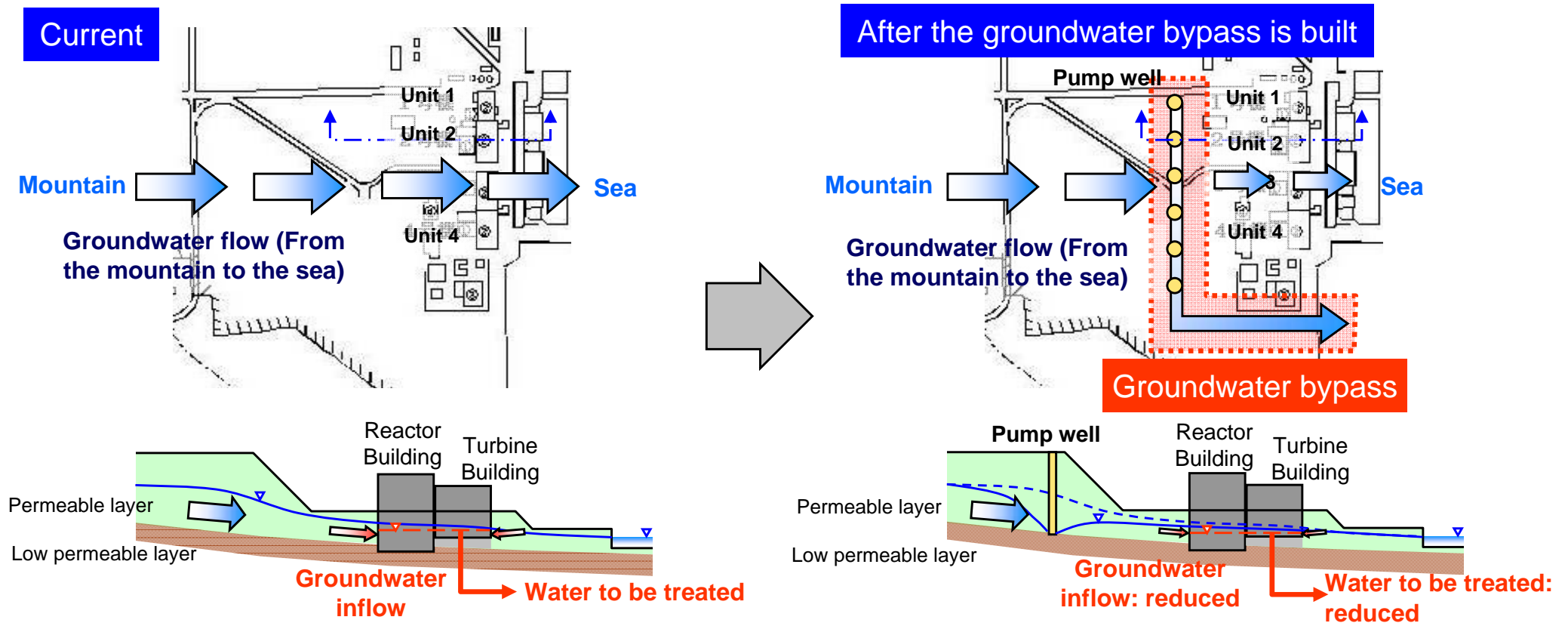
January 28, 2013

Tokyo Electric Power Company



東京電力

1. Groundwater Bypass



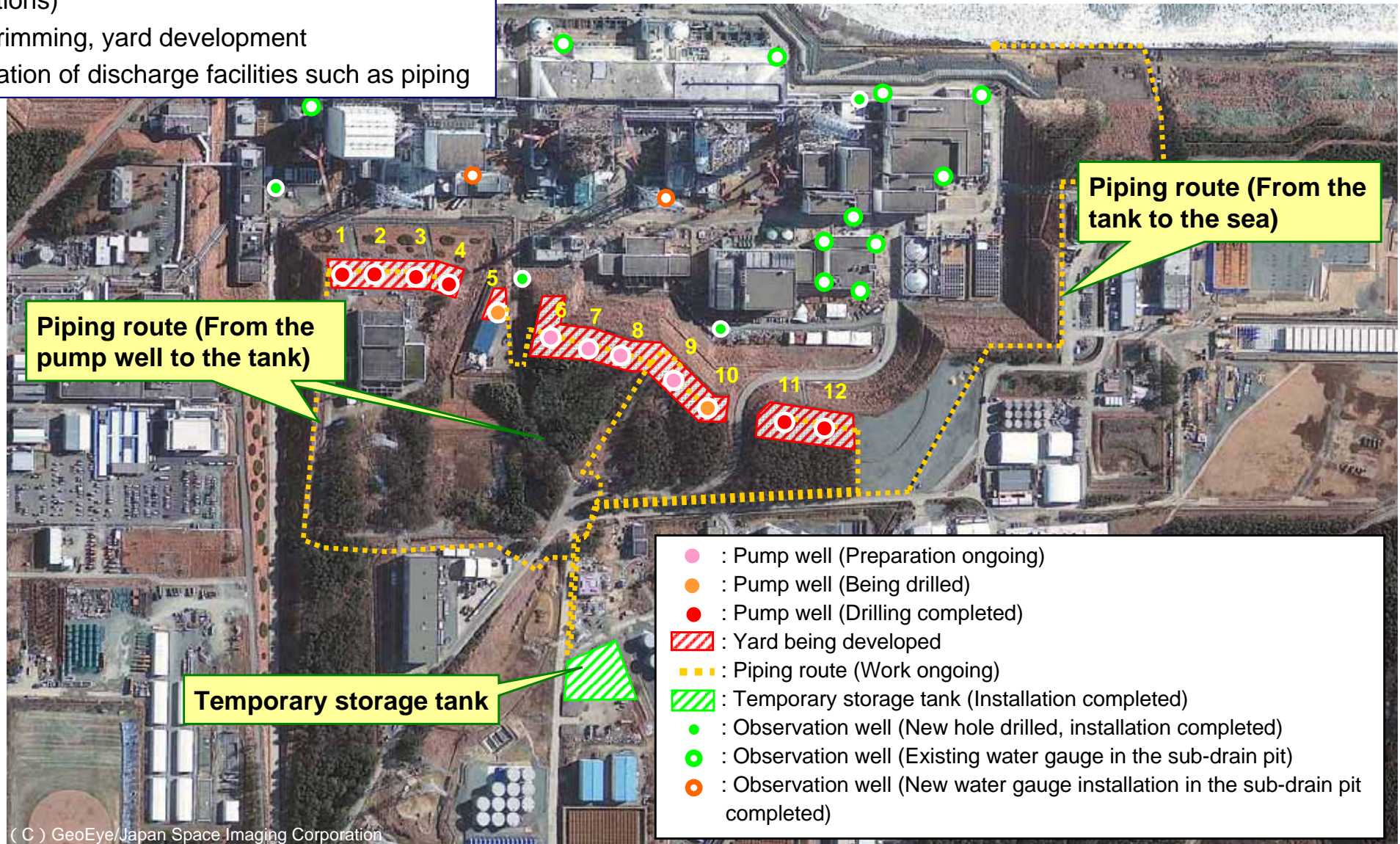
- Groundwater usually flows through the permeable layer from the mountain side to the sea side.
- Part of groundwater flows into the buildings in the process of flowing towards the sea, causing the accumulated water in the buildings to increase.
- The sub-drain is being restored in order to reduce the amount of groundwater flowing into the buildings.

- Groundwater flowing from the mountain side is pumped up in the upstream of the buildings and change the groundwater flow channel (Groundwater bypass)
- With the groundwater bypass, the groundwater level around the buildings (mainly in the mountain side) will be reduced and the amount of groundwater flowing into the buildings will also be reduced.
- The restoration of the sub-drain will be continued.

2. Progress Status of the Groundwater Bypass Construction

Work currently ongoing (as of January 28)

- Drilling for the pump well (Completed in 6 out of 12 locations)
- Tree trimming, yard development
- Installation of discharge facilities such as piping

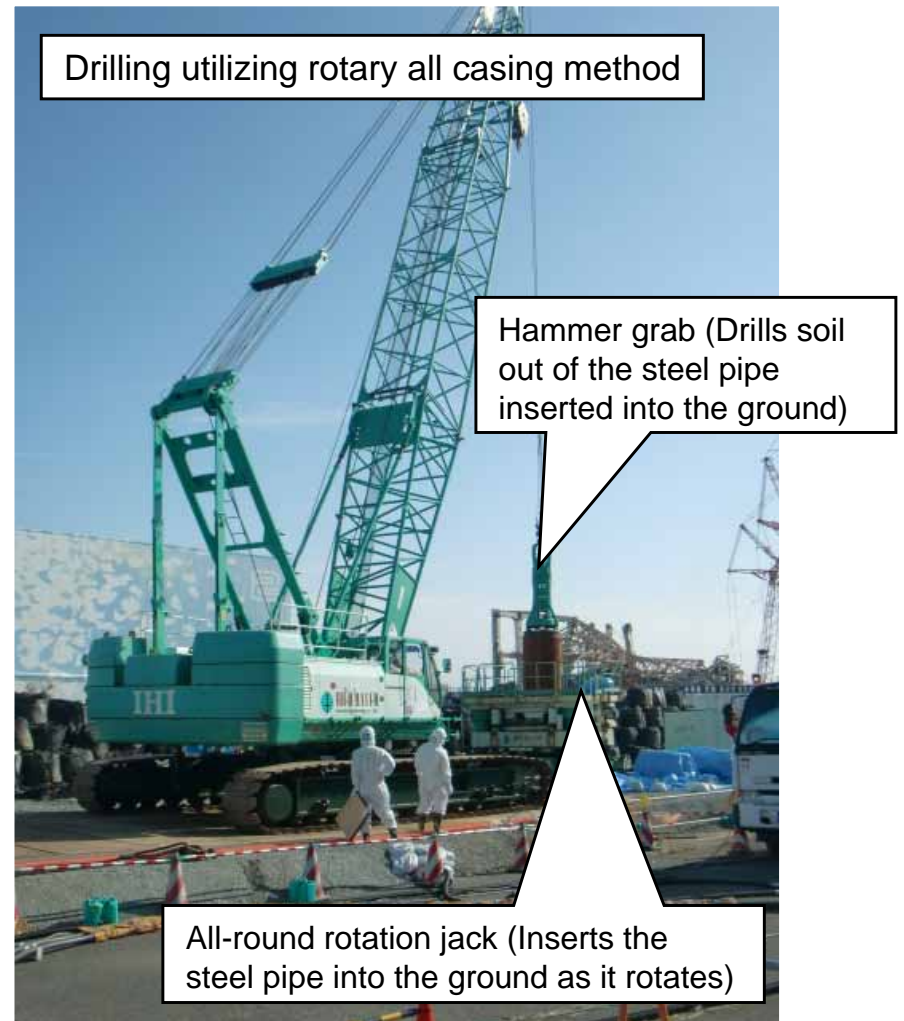


3. Groundwater Bypass Construction

[Yard development]



[Pump well construction]



4. Groundwater Bypass Verification Test

Drilling for the pilot pump wells (2 pump wells constructed first) of the groundwater bypass was completed in early December 2012. Verification test was performed from December 14-25, 2012.

Method and purpose of the verification test

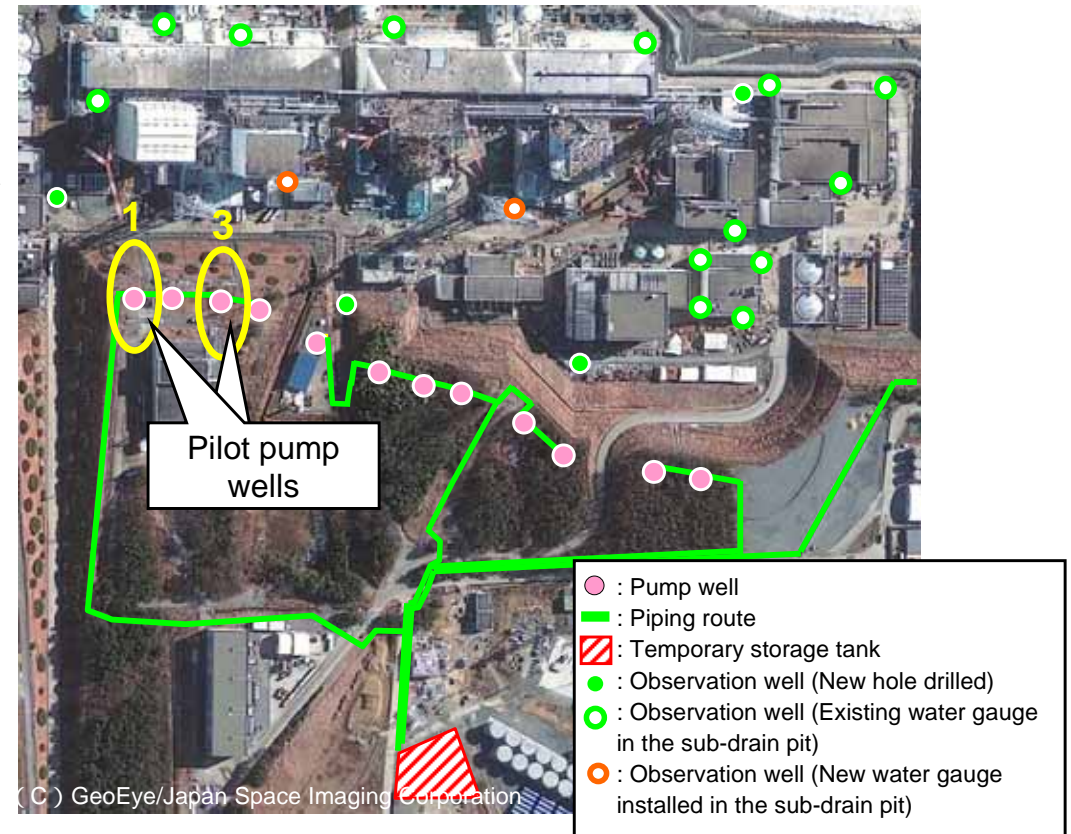
The verification test was performed by putting groundwater pumped up from No.3 pump well into No.1 pump well. Pumping test and water quality test were performed.

1. Pumping test

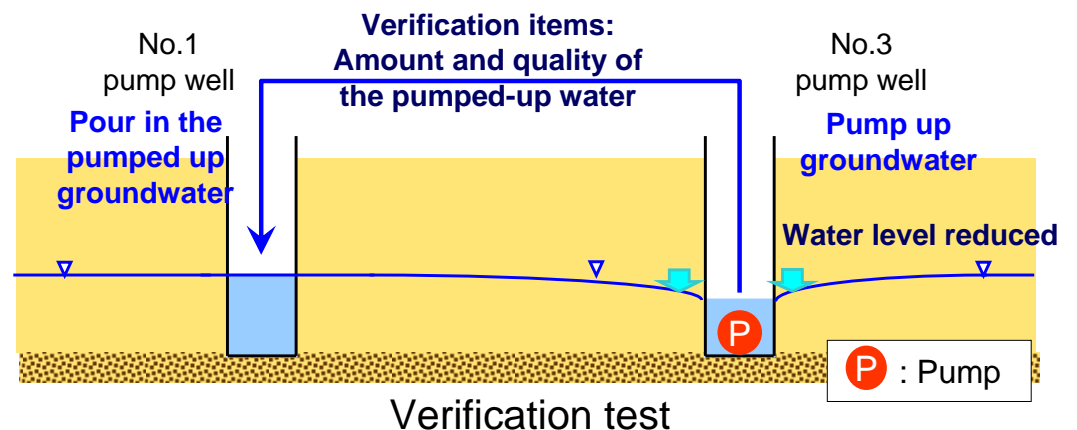
Evaluate if a certain amount of water can be continuously pumped up while keeping the pump well water level constant by continuously operating the pump.

2. Water quality test

The quality of groundwater sampled from the pilot pump wells is evaluated through radioactivity analysis.

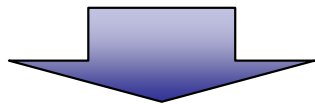


Location of the pilot pump well

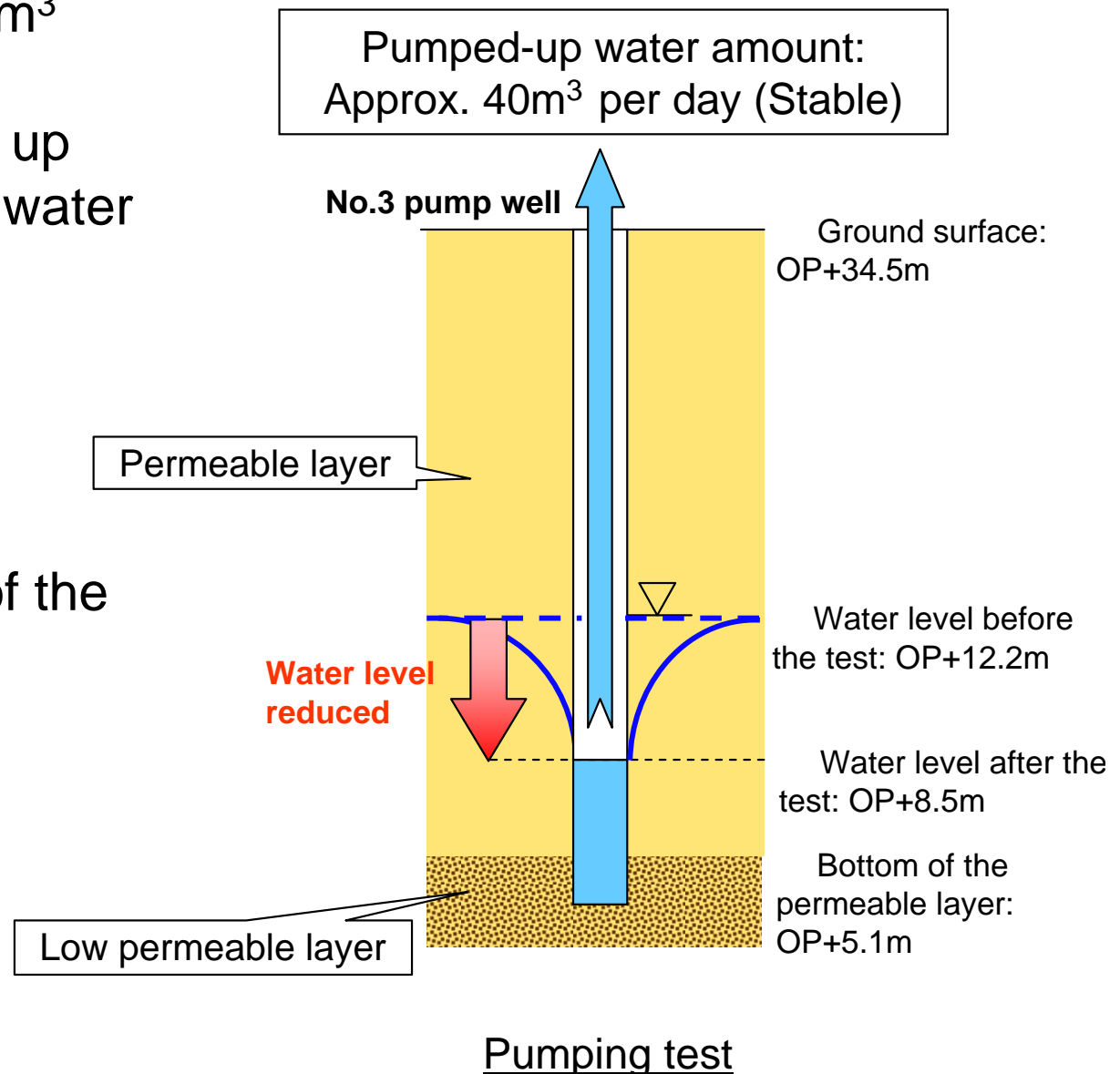


5. Pumping Test Results

It was confirmed that approx. 40m³ groundwater (per day) can be continuously and stably pumped up while maintaining the pump well water level at O.P. +8.5m.



Since the test results indicate no problem with the pump well specifications, the construction of the remaining pump wells has been commenced.



6. Water Quality Test Results (Progress Report)

The quality of the groundwater sampled from No.3 pilot well is currently being examined by TEPCO (at Fukushima Daiichi Nuclear Power Station and Kashiwazaki-Kariwa Nuclear Power Station) and a third party organization (Planned to be completed by the end of February).

Internal analysis results of groundwater sampled from No.3 pump well (Preliminary report) (Bq/L)

Sampling point	Cesium -134	Cesium-137	Strontium 89	Strontium 90
No.3 pump well	0.011	0.012	(Under analysis)	(Under analysis)
< Reference > Deep well No.3	0.010 - 0.015	0.012 - 0.027	ND (<0.017)	ND (<0.0067)

Density limits specified in the law (Reactor Regulation): Cs-134: 60Bq/L, Cs-137: 90Bq/L, Sr-89: 300Bq/L, Sr-90: 30Bq/L

* ND indicates that the result is below the detection limit (the value in the parenthesis)

* Sample of deep well No.3 was obtained on May 6, 2012.

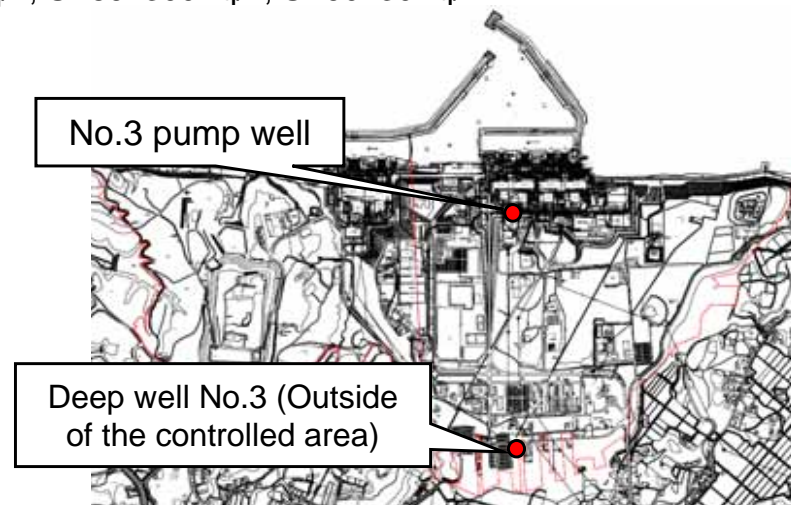
All and analysis results

The results of all and nuclides were below the detection limits.

*Detection limits: All : 1.0Bq/L, all : 2.7Bq/L

Detection of tritium

Low density (10Bq/L) of tritium was detected. The detected density is less than one several thousandth of the density limit specified by the reactor regulation (60,000Bq/L).



The impact on the surrounding environment is considered to be fairly low.

1. Fish and shellfish: Even if fish and shellfish who live in the seawater of the radioactivity density equivalent to that of the groundwater of concern concentrated cesium density to 100 times more* within their bodies, the cesium level would be only about one fortieth of the food standard value (100Bq/kg). (*IAEA technical report No.422)
2. Human body: The cesium 134+137 densities of the sampled groundwater is one four thousandth of the standard value for drinking water (10Bq/L).

7. Overall Schedule

Milestone schedule

- October 2, 2012: Construction commencement
- December 14-25, 2012: Verification test using the pilot pump wells
- Current status (as of January 28): Drilling completed for 6 pump wells, installation of the remaining 6 pump wells and discharge facilities such as piping is ongoing.

Work item		FY 2012									FY 2013	
		May-July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	1st half	
Prior quality evaluation of groundwater	Evaluation of the current water quality	■										
	Water quality investigation	■										
Design in detail		■	■									
Monitoring	Water gauge inside the sub-drain pit				▨	▨	▨	▨	▨	▨	▨	▨
	New observation hole				▨	▨	▨	▨	▨	▨	▨	▨
Tank installation			■	■	■	■	■					
Groundwater bypass construction	Preparatory work (Tree trimming, etc.)				■	■	■	■	■			
	Pilot pump well installation - Verification test (including water quality test)						■	■				
	Pump well installation (including water quality test)						■	■	■	■		
	Installation of discharge facilities						■	■	■	■	●	
Operation commencement of the groundwater bypass												▨

* Start operation upon gaining understanding from parties involved