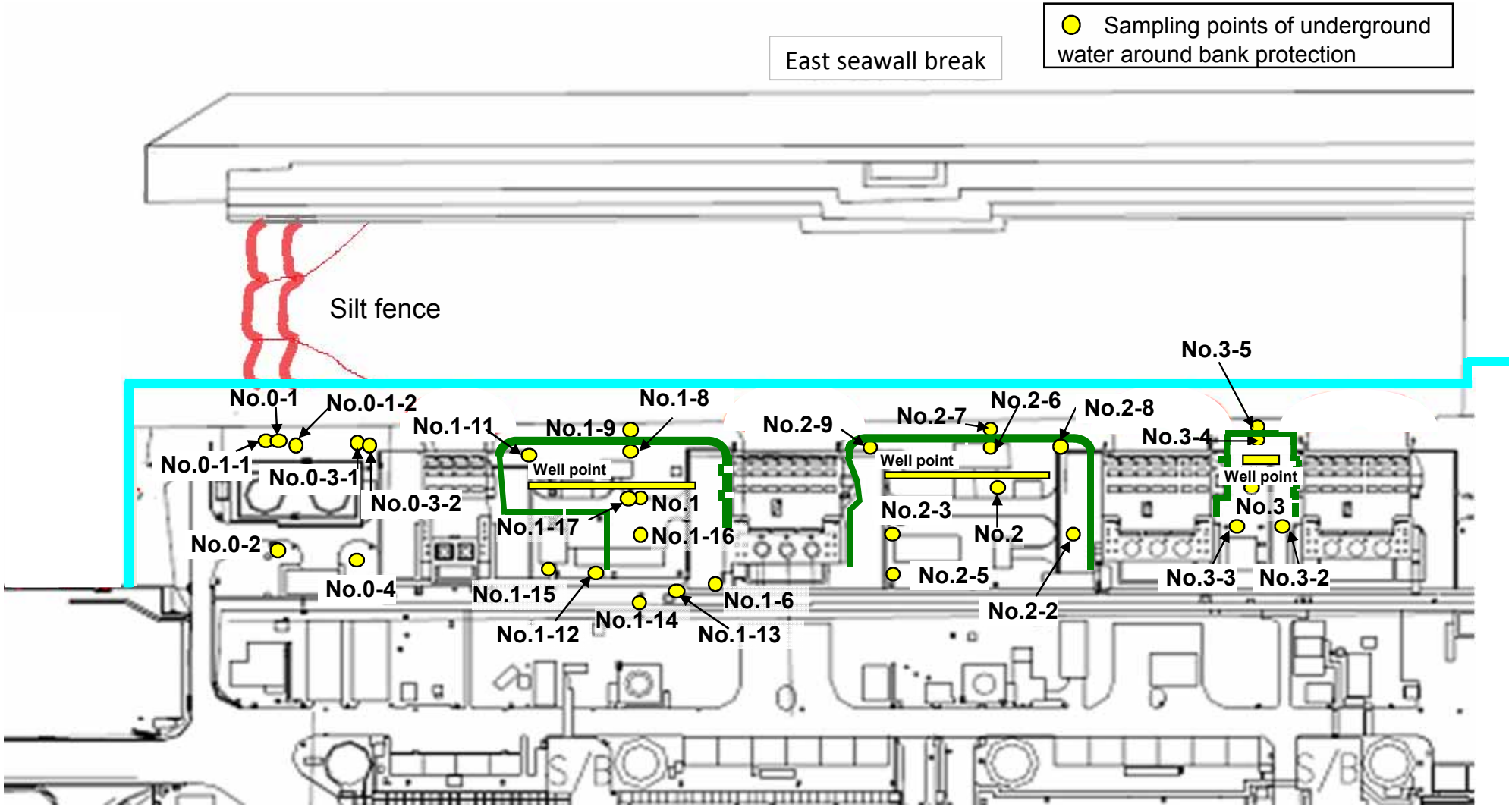
Sampling points of underground water around bank protection at Fukushima Daiichi Nuclear Power Station

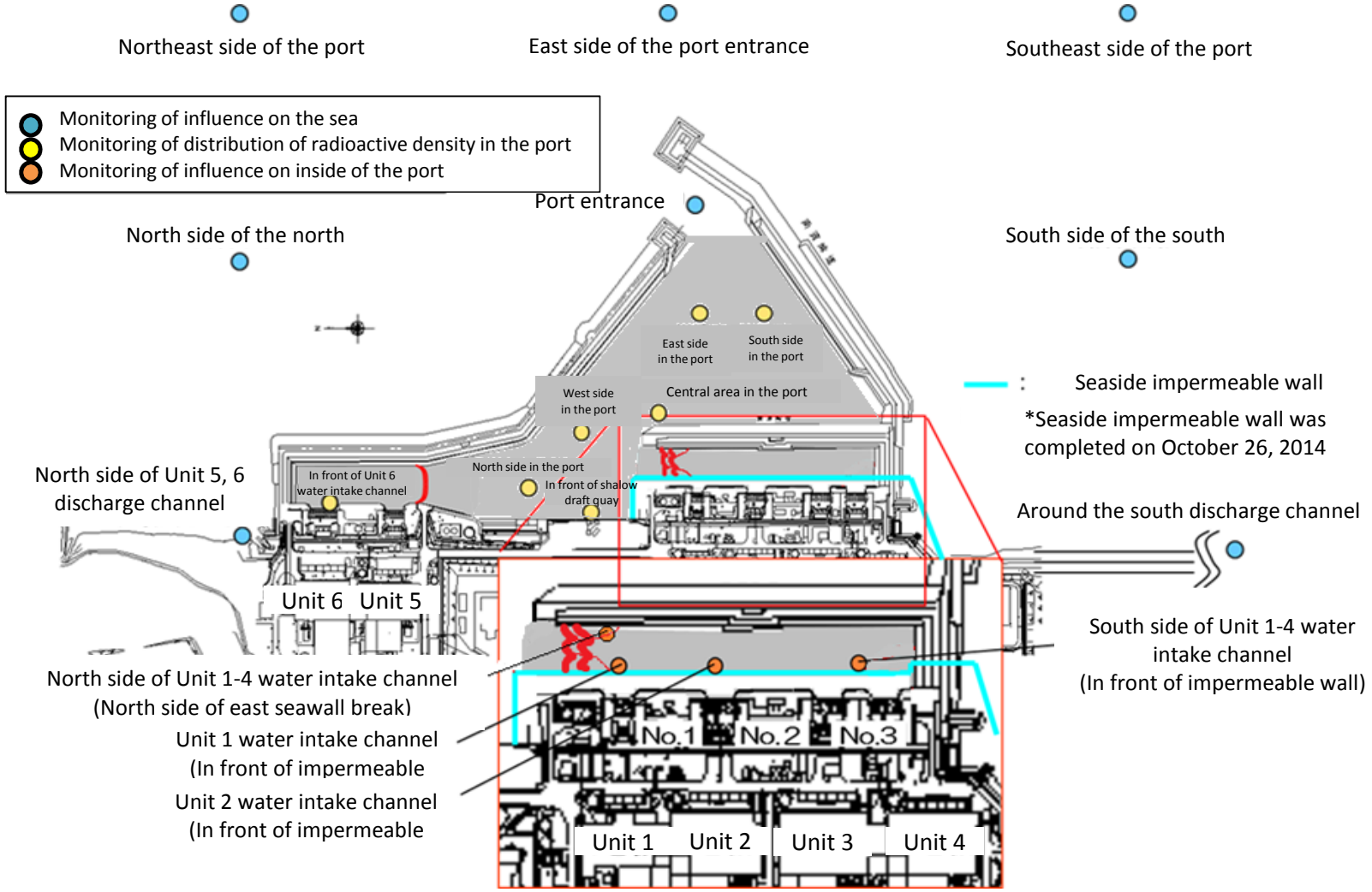


: Seaside impermeable wall

*Seaside impermeable wall was completed on October 26, 2015.

: Location where ground improvement construction was completed, or being implemented (As of April 18, 2014)

Sampling points in the port and around discharge channel at Fukushima Daiichi Nucear Power Station



<Reference> YY/MM/DD
Tokyo Electric Power Company Holdings,
Fukushima Daiichi D & D Engineering Company

Detailed Analysis Results in the Port of Fukushima Daiichi NPS, around Discharge Channel and Bank Protection
Underground Water Obtained at Bank Protection

Unit: Bq/L (exclude chloride)

		Underground water observation hole No.0-1	Underground water observation hole No.0-1-2	Underground water observation hole No.0-2	Underground water observation hole No.0-3-1	Underground water observation hole No.0-3-2	Underground water observation hole No.0-4	Underground water observation hole No.1	Underground water observation hole No.1-6	Underground water observation hole No.1-8	Underground water observation hole No.1-9	Underground water observation hole No.1-11	Underground water observation hole No.1-12	Underground water observation hole No.1-14	Underground water observation hole No.1-16	Underground water observation hole No.1-17
Date of sampling																
Time of sampling																
Chloride (unit: ppm)																
Cs-134 (Approx. 2 years)																
Cs-137 (Approx.30 years)																
The other γ	Ru-106 (Approx. 370 days)															
	Mn-54 (Approx. 310 days)															
	Co-60 (Approx. 5 years)															
	Sb-125 (Approx. 3 years)															
Gross β																
H-3 (Approx. 12 years)																
Sr-90 (Approx. 29 years)																

		Groundwater pumped up from the well point (between Unit 1 and 2)	Underground water observation hole No.2	Underground water observation hole No.2-2	Underground water observation hole No.2-3	Underground water observation hole No.2-5	Underground water observation hole No.2-6	Underground water observation hole No.2-7	Underground water observation hole No.2-8	Groundwater pumped up from the well point (between Unit 2 and 3)	Underground water observation hole No.3	Underground water observation hole No.3-2	Underground water observation hole No.3-3	Underground water observation hole No.3-4	Underground water observation hole No.3-5	Groundwater pumped up from the well point (between Unit 3 and 4)
Date of sampling																
Time of sampling																
Chloride (unit: ppm)																
Cs-134 (Approx. 2 years)																
Cs-137 (Approx.30 years)																
The other γ	Ru-106 (Approx. 370 days)															
	Mn-54 (Approx. 310 days)															
	Co-60 (Approx. 5 years)															
	Sb-125 (Approx. 3 years)															
Gross β																
H-3 (Approx. 12 years)																
Sr-90 (Approx. 29 years)																

* Data announced this time is provided in a thick-frame.
* "ND" indicates that the measurement result is below the detection limit, and the detection limit of each nuclide is provided in parentheses, except "the other γ".
* "-" indicates that the measurement was out of range.

Detailed Analysis Results in the Port of Fukushima Daiichi NPS, around Discharge Channel and Bank Protection Seawater

Unit: Bq/L

	1F, North side of Unit 5,6 discharge channel	1F, In front of Unit 6 water intake channel	1F, In front of shallow draft quay	1F, North side of Unit 1-4 water intake channel (north side of East Seawall Break)	1F, In front of Unit 1 water intake channel (in front of impermeable wall)	1F, In front of Unit 2 water intake channel (in front of impermeable wall)	1F, South side of Unit 1-4 water intake channel (in front of impermeable wall)	1F, Around the south discharge channel	1F, Port entrance	1F, East side in the port	Density Limit Specified by the Reactor Regulation *	WHO Guidelines for drinking-water quality
Date of Sampling												
Time of sampling												
Cs-134(Approx. 2 years)											60	10
Cs-137(Approx.30 years)											90	10
Gross β												
H-3 (Approx. 12 years)											60,000	10,000
Sr-90 (Approx. 29 years)											30	10

Unit: Bq/L

	1F, West side in the port	1F, North side in the port	1F, South side in the port	Central area in the port	1F, North side of the north breakwater	entrance (north-east side)	1F, Port entrance (east side)	1F, Port entrance (south-east side)	1F, South side of the south breakwater		Density Limit Specified by the Reactor Regulation *	WHO Guidelines for drinking-water quality
Date of Sampling												
Time of sampling												
Cs-134(Approx. 2 years)											60	10
Cs-137(Approx.30 years)											90	10
Gross β												
H-3 (Approx. 12 years)											60,000	10,000
Sr-90 (Approx. 29 years)											30	10

* Data announced this time is provided in a thick-frame.
* "ND" indicates that the measurement result is below the detection limit, and the detection limit of each nuclide is provided in parentheses.
* "-" indicates that the measurement was out of range.

* Density Limit Specified by the Rule for the Installation, Operation, etc. of Commercial Nuclear Power Reactors (the density limit in the water outside the surrounding monitored areas is provided in section 6 of Appendix 2 [the amount is converted from Bq/cm3 to Bq/L]).

<Rerefence > The Highest Dose Until the Previous Measurement (Groundwater Obtained ad Bank Protection)

Unit：Bq/L

		Groundwater observation hole No.0-1	Groundwater observation hole No.0-1-1	Groundwater observation hole No.0-1-2	Groundwater observation hole No.0-2	Groundwater observation hole No.0-3-1	Groundwater observation hole No.0-3-2	Groundwater observation hole No.0-4	Groundwater observation hole No.1	Groundwater observation hole No.1-1※	Groundwater observation hole No.1-2※	Groundwater observation hole No.1-3※	Groundwater observation hole No.1-4※	Groundwater observation hole No.1-5※	Groundwater observation hole No.1-6※
Cs-134(Approx. 2 years)															
Cs-137(Approx.30 years)															
The other γ	Ru-106(Approx. 370 days)														
	Mn-54(Approx. 310 days)														
	Co-60(Approx. 5 years)														
	Sb-125(Approx. 3 years)														
Gross β															
H-3(Approx. 12 years)															
Sr-90(Approx. 29 years)															

Unit：Bq/L

		Groundwater observation hole No.1-8	Groundwater observation hole No.1-9	Groundwater observation hole No.1-10	Groundwater observation hole No.1-11	Groundwater observation hole No.1-12	Groundwater observation hole No.1-13	Groundwater observation hole No.1-14	Groundwater observation hole No.1-15	Groundwater observation hole No.1-16	Groundwater observation hole No.1-17	Groundwater pumped up from the well point between Unit 1 and 2※1	Groundwater observation hole No.2	Groundwater observation hole No.2-1※	Groundwater observation hole No.2-2
Cs-134(Approx. 2 years)															
Cs-137(Approx.30 years)															
The other γ	Ru-106(Approx. 370 days)														
	Mn-54(Approx. 310 days)														
	Co-60(Approx. 5 years)														
	Sb-125(Approx. 3 years)														
Gross β															
H-3(Approx. 12 years)															
Sr-90(Approx. 29 years)															

Unit：Bq/L

		Groundwater observation hole No.2-3	Groundwater observation hole No.2-5	Groundwater observation hole No.2-6	Groundwater observation hole No.2-7	Groundwater observation hole No.2-8	Groundwater observation hole No.2-9	Groundwater pumped up from the well point between Unit 2 and 3※1	Groundwater observation hole No.3	Groundwater observation hole No.3-1※	Groundwater observation hole No.3-2	Groundwater observation hole No.3-3	Groundwater observation hole No.3-4	Groundwater observation hole No.3-5	Groundwater pumped up from the well point between Unit 3 and 4※1
Cs-134(Approx. 2 years)															
Cs-137(Approx.30 years)															
The other γ	Ru-106(Approx. 370 days)														
	Mn-54(Approx. 310 days)														
	Co-60(Approx. 5 years)														
	Sb-125(Approx. 3 years)														
Gross β															
H-3(Approx. 12 years)															
Sr-90(Approx. 29 years)															

● Since some samples are still under analysis, the highest dose of the Strontium-90 is among those previously announced

*1 Analysis result of pumped water

*2 The results are for reference, since the water was highly turbid. (γ and Gross β were measured after filtration.)

※The hole where the sampling could not be performed due to the chemical injection of ground improvement

(Note) As for No.1-9, 2-5 and 3-5, γ values were not measured because the seawater was sampled using a sampling device. Gross β was measured after filtration as a reference.

* "ND" indicates that the measurement result is below the detection limit.

* The sampling date is provided in parentheses. [ ]: 2013, 〈 〉: 2014, 【 】: 2015, 《 》: 2016, { }: 2017

※1 Sample names were changed due to changing of pumping up method.

<Reference> The Highest Dose Until the Previous Measurement* (Seawater)

Unit：Bq/L

	1F, North side of Unit 5,6 discharge channel	1F, In front of Unit 6 water intake channel	1F, In front of shallow draft quay	1F, North side of Unit 1-4 water intake channel (north side of East Seawall Break)	1F, In front of Unit 1 water intake channel (in front of impemeable wall)	1F, In front of Unit 2 water intake channel (in front of impemeable wall)	1F, Between the water intake channel of Unit 3 and Unit 4	1F, Unit 4 screen (inside the silt fense)	1F, South side of Unit 1-4 water intake channel (in front of impemeable wall)	1F, Arround south discharge channel	1F, Port entrance
Cs-134 (Approx. 2Years)											
Cs-137 (Approx.30years)											
Gross β											
H-3 (Approx. 12 years)											
Sr-90 (Approx. 29 years)											

Unit：Bq/L

	1F, East side in the port	1F, West side in the port	1F, North side in the port	1F, South side in the port	1F, Center in the port	1F, North side of the north breakwater	1F, Northeast side of the port entrance	1F, East side of the port entrance	1F, Southeast side of the port entrance	1F, South side of the south breakwater
Cs-134 (Approx. 2Years)										
Cs-137 (Approx.30years)										
Gross β										
H-3 (Approx. 12 years)										
Sr-90 (Approx. 29 years)										

※The highest result announced in "Detailed Analysis Results in the Port of Fukushima Daiichi NPS, arround Discharge Channel and Bank Protection" or the other handouts is provided.
"1F, North side of Unit 1-4 water intake channel" has been sampled since Janualy 14, 2013. Other points have been sampled since June 14, 2013.

● Since some samples are still under analysis, the highest dose of the Strontium-90 is among those previously announced

* "ND" indicates that the measurement result is below the detection limit.
* The sampling date is provided in parentheses. 〔 〕: 2013, 〈 〉: 2014, 【 】: 2015, 《 》: 2016, { }: 2017
* "-" indicates that the meadurement was out of range.

[Reference] Standard values

Unit：Bq/L

	Cs-134	Cs-137	H-3	Sr-90
Density Limit Specified by the Rule for the Installation, Operation, etc. of Commercial Nuclear Power Reactors (the density limit in the water outside the surrounding monitored areas is provided				
WHO Guidelines for drinking-water quality				