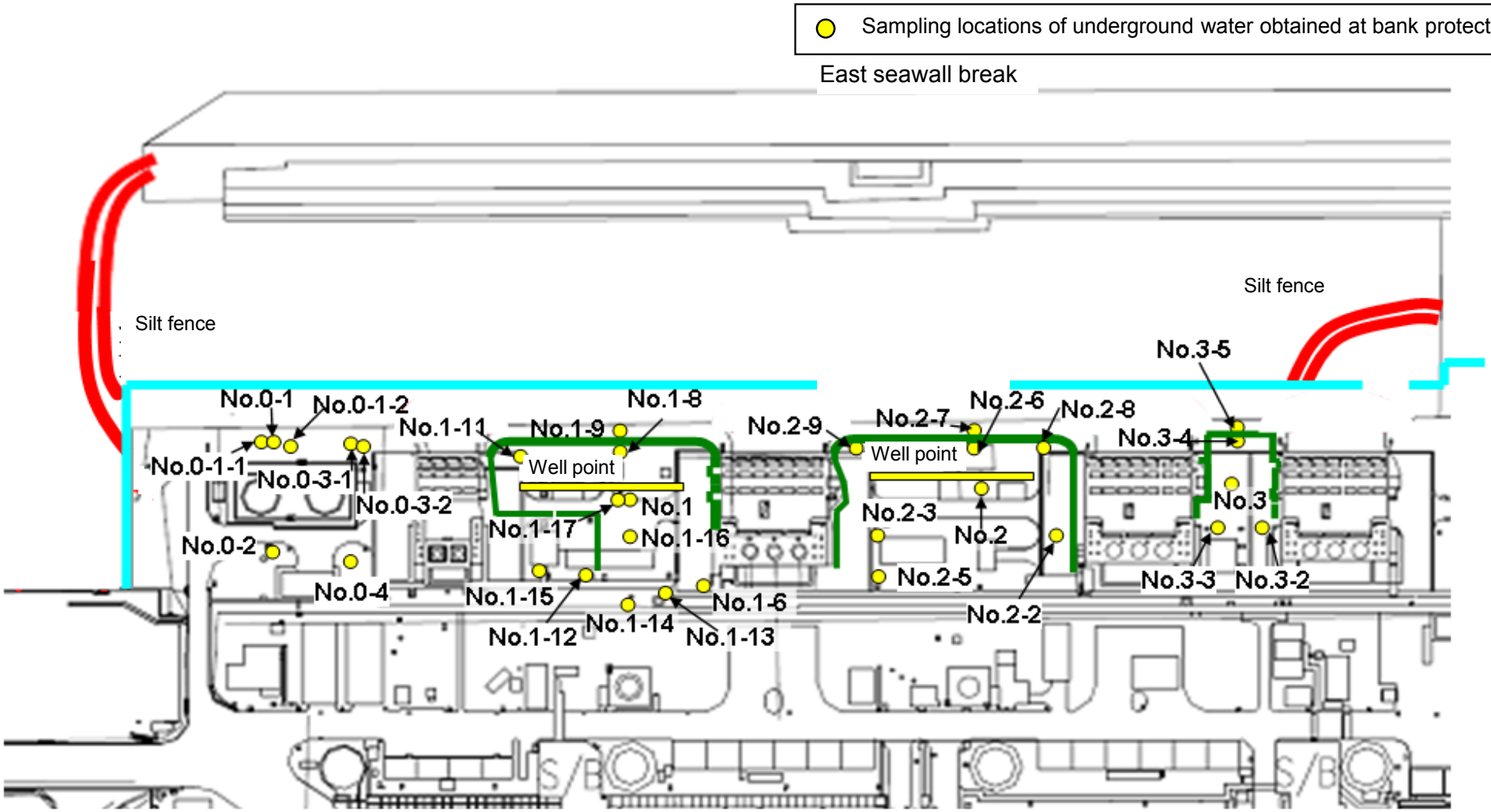
<Reference>
October 30, 2014
Tokyo Electric Power Company

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



Detailed Analysis Results in the Port of Fukushima Daiichi NPS, around Discharge Channel and Bank Protection (1/3)
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 (note)	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															
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 (note)	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(note)
Date of sampling		Oct 26	Oct 26	Oct 26			Oct 26	Oct 26	Oct 26					
Time of sampling		9:05 AM	10:30 AM	9:35 AM			9:55 AM	10:10 AM	10:00 AM					
Chloride (unit: ppm)		—	—	—			600	—	—					
Cs-134 (Approx. 2 years)		ND(0.46)	5.9	ND(0.43)			ND(0.46)	ND(0.44)	ND(0.66)					
Cs-137 (Approx.30 years)		ND(0.59)	22	ND(0.61)			1.0	ND(0.58)	ND(0.80)					
The other γ														
Gross β		170	370	800			710	4,900	110,000					
H-3 (Approx. 12 years)		770	340	830			610	1,200	13,000					
Sr-90（Approx. 29 years）		—	—	—			—	—	—					

* Data announced this time is provided in a thick-frame. The other data was announced on October 27.

* "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.
(Note) As of No. 1-9, 2-5, and 3-5, γwas not measured because they are samlpled by sampler. Gross βwere measured after filtation for references.

Detailed Analysis Results in the Port of Fukushima Daiichi NPS, around Discharge Channel and Bank Protection (2/3)
Underground Water Obtained at Bank Protection

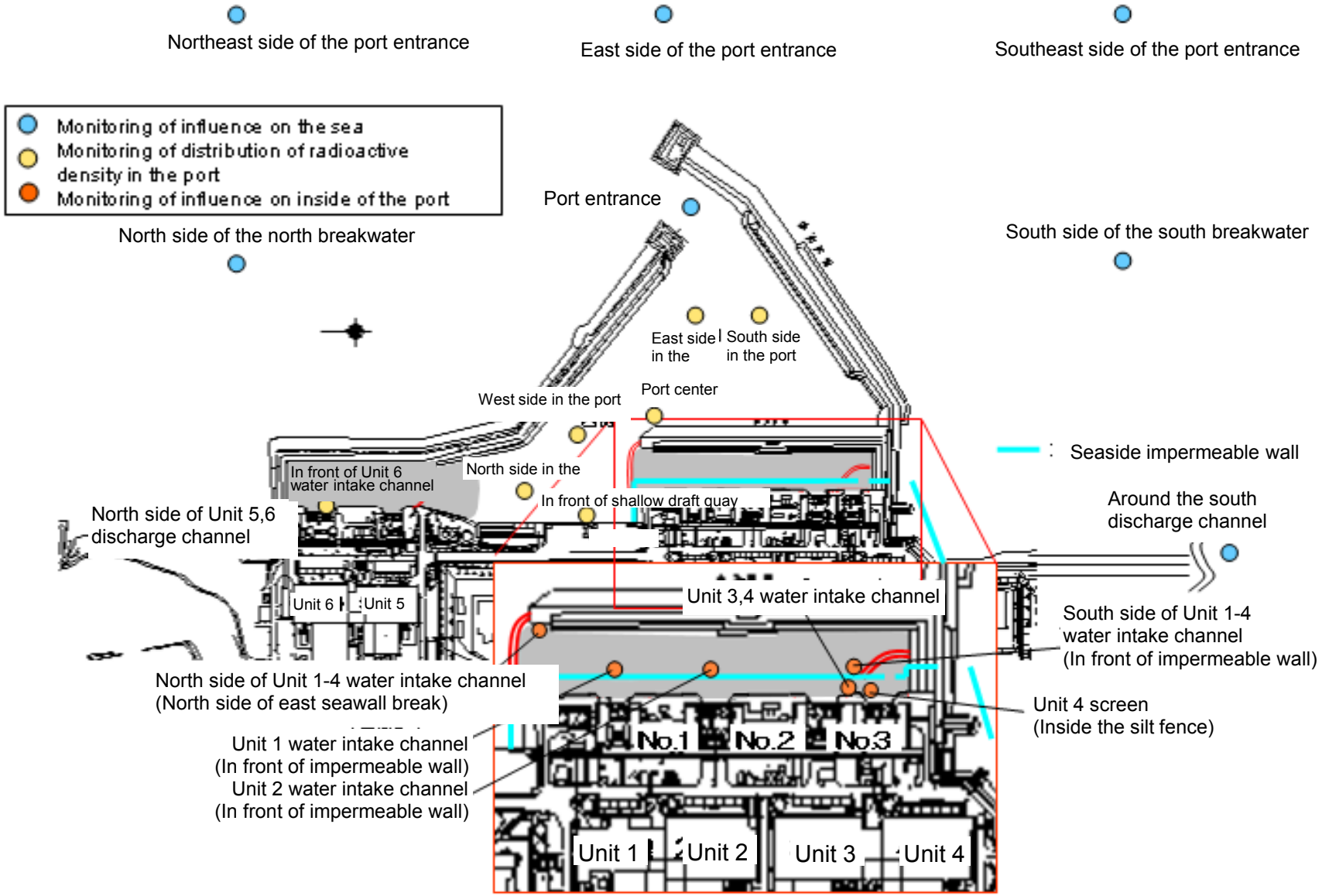
Unit: Bq/L (exclude chloride)

	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(note)	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: Sb-125 (Approx. 3 years)															
The other γ															
The other γ															
The other γ															
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(note)	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(note)
Date of sampling		Oct 29	Oct 29	Oct 29			Oct 29	Oct 29	Oct 29	Oct 29	Oct 29	Oct 29	Oct 29	Oct 29
Time of sampling		8:51 AM	10:34 AM	9:32 AM			9:53 AM	10:12 AM	10:00 AM	9:42 AM	10:37 AM	11:00 AM	10:02 AM	9:56 AM
Chloride (unit: ppm)		–	–	–			600	–	–	–	–	–	–	700
Cs-134 (Approx. 2 years)		ND(0.42)	4.2	ND(0.42)			0.68	ND(0.41)	ND(0.67)	0.94	18	52	4.5	–
Cs-137 (Approx.30 years)		0.74	19	0.62			1.7	ND(0.56)	ND(0.73)	2.7	53	170	12	–
The other γ: Sb-125 (Approx. 3 years)		ND	ND	ND			ND	ND	ND	1.6	ND	ND	ND	–
The other γ														
The other γ														
The other γ														
Gross β		150	400	790			740	4,700	110,000	ND(19)	2600	4200	26	26
H-3 (Approx. 12 years)		Under analysis	Under analysis	Under analysis			Under analysis	Under analysis	Under analysis	Under analysis	Under analysis	Under analysis	Under analysis	Under analysis
Sr-90（Approx. 29 years）		–	–	–			–	–	–	–	–	–	–	–

* "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.
(Note) As of No. 1-9, 2-5, and 3-5, γwas not measured because they are samlpled by sampler. Gross βwere measured after filtation for references.

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



Detailed Analysis Results in the Port of Fukushima Daiichi NPS, around Discharge Channel and Bank Protection (3/3)
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 intake channel (in front of impermeable wall)	1F, In front of Unit 2 intake channel (in front of impermeable wall)	1F, Between the water intake channel of Unit 3 and Unit 4	1F, Unit 4 Screen (Inside the Silt Fence)	1F, South side of Unit 1-4 water intake channel (In front of impermeable wall)	1F, Around the south discharge channel	1F, Port entrance	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, East side in the port	1F, West side in the port	1F, North side in the port	1F, South side in the port	1F, Port center	North side of the north breakwater	Northeast side of the port entrance	East side of the port entrance	Southeast side of the port entrance	South side of the south breakwater		Density Limit Specified by the Reactor Regulation *	WHO Guidelines for drinking-water quality
Date of Sampling						Oct 28	Oct 28	Oct 28	Oct 28	Oct 28			
Time of sampling						8:38 AM	8:43 AM	8:32 AM	8:27 AM	8:24 AM			
Cs-134(Approx. 2 years)						ND(0.59)	ND(0.60)	ND(0.47)	ND(0.67)	ND(0.64)		60	10
Cs-137(Approx.30 years)						ND(0.58)	ND(0.59)	ND(0.74)	ND(0.63)	ND(0.58)		90	10
Gross β						ND(17)	ND(17)	ND(17)	ND(17)	ND(17)			
H-3 (Approx. 12 years)						Under analysis	Under analysis	Under analysis	Under analysis	Under analysis		60,000	10,000
Sr-90（Approx. 29 years）						—	—	—	—	—		30	10

* "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/cm^3 to Bq/L]).

<Reference> The Highest Dose Until the Previous Measurement (Groundwater Obtained at 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)	29 <5/25>	ND	0.61 <3/2>	0.61 〔10/13〕	0.64 <4/6>	1.3 <9/25>	0.70 <6/29>	13 〔8/29〕	1.9 〔7/8〕	11,000 〔7/9〕	10 〔9/2〕	1.5 〔7/8〕	310 〔8/5〕	67,000 <10/17>
Cs-137 (Approx.30 years)	78 <5/25>	ND	1.5 <3/2>	2.2 <1/12>	1.1 <4/6>	5.1 <9/25>	1.6 <6/29>	31 〔8/29〕	3.6 〔7/8〕	22,000 〔7/9〕	24 〔9/2〕	3.6 〔7/8〕	650 〔8/5〕	200,000 <10/16>
The other γ Ru-106 (Approx. 370 days)	ND	ND	ND	ND	ND	ND	ND	26 〔5/24〕	7.9 〔7/8〕	160 〔8/15〕	17 〔7/22〕〔8/8〕	3.1 〔8/8〕	ND	ND
The other γ Mn-54 (Approx. 310 days)	ND	ND	ND	ND	ND	0.64 <2/20>	ND	ND	1.0 〔7/5〕	62 〔7/5〕	ND	ND	ND	700 <10/13>
The other γ Co-60 (Approx. 5 years)	ND	ND	ND	ND	ND	ND	ND	0.50 〔7/19〕	ND	3.1 〔7/8〕	ND	ND	ND	3600 <10/13>
The other γ Sb-125 (Approx. 3 years)	ND	ND	ND	ND	ND	ND	ND	1.7 〔7/11〕	ND	250 〔7/15〕	1.4 〔7/12〕〔8/26〕	ND	12 〔8/8〕	34 <5/19>
Gross β	300 [8/29] <5/18>	21 〔12/7〕	24 <6/22>	87 〔10/13〕	ND	74 <10/9>	44 <6/22>	1,900 〔5/24〕	4,400 〔7/8〕	9,300,000 〔7/8〕	160,000 〔8/12〕〔8/15〕	380 〔8/19〕	56,000 〔8/5〕	7,800,000 <10/13>
H-3 (Approx. 12 years)	45,000 〔8/29〕	18,000 〔12/7〕	74,000 [12/15] <1/19>	6,800 <2/16>	ND	76,000 <2/6>	56,000 <2/23>	500,000 〔5/24〕〔6/7〕	630,000 〔7/8〕	430,000 〔9/16〕	290,000 〔7/12〕	98,000 〔7/11〕	72,000 〔8/15〕	*2 110,000 <2/6>
Sr-90(Approx. 29 years)	140 〔8/8〕	7.9 〔12/7〕	2.6 〔11/10〕	0.73 〔9/2〕	1.5 〔11/20〕	2.3 〔12/6〕	ND(0.83) 〔10/27〕	1,300 〔8/22〕	2,300 〔6/28〕	5,000,000 〔7/5〕	130,000 〔8/8〕	200 〔7/8〕	5,100 〔8/22〕	1,100,000 <8/4>

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)	Groundwater observation hole No.2	Groundwater observation hole No.2-1※	Groundwater observation hole No.2-2
Cs-134 (Approx. 2 years)	47 〔11/25〕	170 〔9/3〕	-	1.1 <1/13>	74 〔10/21〕	37,000 <2/13>	130 <10/18>	ND	30 <7/28>	1.4 <7/7>	110 〔9/23〕	0.88 <2/26>	0.66 〔9/1〕	15 <2/12>
Cs-137 (Approx.30 years)	110 〔11/25〕	380 〔9/3〕	-	3.4 <4/28>	170 〔10/21〕	93,000 <2/13>	390 <10/20>	0.88 <7/10>	86 <7/28>	3.0 <9/29>	250 〔9/23〕	2.5 <2/26>	1.1 〔8/29〕〔9/1〕	38 <2/12>
The other γ Ru-106 (Approx. 370 days)	ND	ND	-	ND	5.4 〔10/28〕	ND	ND	ND	9.2 〔10/28〕	5.5 <4/21> <5/1>	25 〔9/2〕	ND	ND	ND
The other γ Mn-54 (Approx. 310 days)	12 <2/3>	ND	-	ND	ND	ND	2.1 <9/8>	ND	11 <8/25>	ND	8.5 <4/28>	ND	ND	ND
The other γ Co-60 (Approx. 5 years)	1.3 <2/3>	ND	-	ND	0.51 〔10/24〕	ND	0.44 <5/29>	ND	0.9 〔11/7〕	0.61 〔11/25〕	0.61 <6/9>	ND	ND	ND
The other γ Sb-125 (Approx. 3 years)	ND	ND	-	ND	61 〔10/21〕	ND	ND	ND	24 <6/16>	2.1 〔11/25〕	ND	ND	ND	ND
Gross β	59,000 <2/3>	*2 2,100 〔11/17〕	*2 78 <1/27>	2,300 〔12/26〕	1,100 <5/5>	260,000 <2/12> <2/13>	29,000 <10/3>	110 <7/10>	3,100,000 <1/20> <1/30> <2/3>	1,200,000 <10/9>	1,900,000 〔9/23〕	1,700 〔7/8〕	380 〔7/29〕	600 <4/16>
H-3 (Approx. 12 years)	33,000 <6/2>	*2 860 〔11/14〕	*2 270,000 <1/27>	85,000 〔9/13〕	440,000 〔10/31〕	88,000 <2/12>	23,000 <2/13>	74,000 <7/10>	43,000 〔9/26〕	160,000 <10/13> <10/16>	460,000 〔8/19〕	1,000 <2/23>	440 〔8/26〕	660 <1/8>
Sr-90(Approx. 29 years)	35,000 <2/17>	300 〔10/3〕	—	170 <8/4>	290 〔10/21〕	160,000 <2/12>	13,000 <8/4>	Under analysis	2,700,000 <2/13>	170,000 <8/4>	—	54 〔5/31〕	5.9 〔7/25〕	320 〔12/25〕

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)	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
Cs-134 (Approx. 2 years)	2.2 〈2/26〉	41 〈5/7〉	17 〈3/11〉	3.5 〈2/23〉	1.3 〈7/20〉	ND	2.2 〈9/7〉	3.5 〔7/25〕	1.2 〔7/25〕〔8/8〕	23 〈8/27〉	180 〈7/2〉	5.1 〈7/23〉	100 〈7/30〉
Cs-137 (Approx.30 years)	5.5 〈2/26〉	110 〈5/7〉	50 〈3/11〉	9.0 〈2/23〉	3.4 〈7/20〉	*2 0.58 〈2/11〉	5.7 〈9/7〉	5.9 〔8/8〕	2.6 〔8/1〕	68 〈9/3〉	500 〈7/2〉	16 〈8/27〉	310 〈7/30〉
The other γ Ru-106 (Approx. 370 days)	ND	ND	ND	ND	ND	*2 6.5 〈2/11〉	ND	ND	ND	ND	ND	ND	-
The other γ Mn-54 (Approx. 310 days)	0.29 〔12/6〕	0.95 〈6/4〉	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.54 〔10/30〕	-
The other γ Co-60 (Approx. 5 years)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
The other γ Sb-125 (Approx. 3 years)	ND	74 〈5/7〉	ND	ND	ND	ND	ND	1.6 〈1/1〉	ND	ND	ND	ND	-
Gross β	1,500 〔12/6〕 〈1/8〉	150,000 〈2/12〉	3,200 〔12/5〕	1,300 〈6/20〉	5,800 〈7/23〉	1,700 〈2/7〉	240,000 〔12/12〕	1,400 〔7/11〕	180 〔8/1〕	3,100 〈8/20〉 〈8/28〉	8,900 〈7/2〉	46 〈8/13〉	510 〈7/16〉
H-3 (Approx. 12 years)	1,700 〔12/6〕	7,900 〈4/9〉	1,900 〈8/10〉	1,100 〈1/19〉	1,700 〈4/6〉 〈8/6〉 〈8/13〉	*2 13,000 〈2/7〉 〈2/11〉	13,000 〈10/19〉	3,200 〔Dec,12 2012〕	460 〔8/1〕	3,700 〈7/9〉	8,000 〈5/7〉	170 〔9/18〕	170 〈1/8〉
Sr-90(Approx. 29 years)	1,200 〔12/6〕	34,000 〈5/7〉	Under analysis	ND(1.4) 〔11/21〕	3,900 〈3/30〉	*2 1,200 〈2/11〉	-	8.3 〔Dec,12 2012〕	4.4 〔7/23〕	2000 〈4/18〉	3,600 〈4/30〉	ND	200 〈5/28〉

● 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 a reference, since the water was highly turbid. (γ and Gross β were measured after filtration.)

* "ND" indicates that the measurement result is below the detection limit.
* Date of sampling is provided in parentheses. ( ): 2013, < >: 2014
* "*" is provided next to the name of the holes where the sampling could not be performed due to the chemical injection of ground improvement.
(Note) As of No. 1-9, 2-5, and 3-5, since September 17, γwas not measured because they are samlpled by sampler. Gross βwere measured after filtation for references.

<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 intake channel (in front of impermeable wall)		1F, Between the water intake channel of Unit 1 and Unit 2 (lower layer)		1F, Between the water intake channel of Unit 3 and Unit 4		1F, Unit 4 Screen (Inside the Silt Fence)		1F, South side of Unit 1-4 water intake channel (in front of impermeable wall)		1F, Around the south discharge channel		1F, Port entrance	
Cs-134(Approx. 2 years)	1.8	〔6/21〕	2.8	〔12/2〕	5.3	〔8/5〕	32	〔10/11〕	12	<6/23>	12	<9/8>	50	<9/22>	62	〔9/16〕	19	<9/22>	1.8	<6/9>	3.3	〔12/24〕
Cs-137(Approx.30 years)	4.5	<3/17>	5.8	〔12/2〕	8.6	〔8/5〕	73	〔10/11〕	33	<5/12>	40	<9/8>	150	<9/22>	140	〔9/16〕 <9/22>	60	<9/22>	4.9	<6/9>	7.3	〔10/11〕
Gross β	17	<1/6>	46	〔8/19〕	40	〔7/3〕	320	〔8/12〕	140	<5/5> <7/14> <8/18> <9/1>	160	<8/18>	660	<6/9>	680	<9/22>	380	<3/10>	16	<6/9> <8/4>	69	〔8/19〕
H-3 (Approx. 12 years)	8.7	<5/12>	24	〔8/19〕	340	〔6/26〕	600	〔8/18〕	460	<8/18>	350	<8/18>	2,500	<6/23>	2,200	<7/21>	810	<8/4>	5.6	<5/19>	68	〔8/19〕
Sr-90（Approx. 29 years）	4.7	〔6/26〕	—		7.2	〔6/26〕	220	〔8/19〕	—		—		660	<6/9>	470	〈8/4〉	—		0.29	〔6/26〕	49	〔8/19〕

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, Port center		North side of the north breakwater		Northeast side of the port entrance		East side of the port entrance		Southeast side of the port entrance		South side of the south breakwater	
Cs-134(Approx. 2 years)	3.3	〔10/17〕	4.4	〔12/24〕	5.0	〔12/2〕	3.5	〔10/17〕	ND		ND		ND		ND		ND		ND	
Cs-137(Approx.30 years)	9.0	〔10/17〕	10.0	〔12/24〕	8.4	〔12/2〕	7.8	〔10/17〕	7.8	<10/7>	ND		0.7	<10/8>	1.6	〔10/18〕	ND		ND	
Gross β	74	〔8/19〕	60	〔7/4〕	69	〔8/19〕	79	〔8/19〕	58	<10/7>	ND		ND		ND		ND		ND	
H-3 (Approx. 12 years)	67	〔8/19〕	59	〔8/19〕	52	〔8/19〕	60	〔8/19〕	54	<10/7>	4.7	〔8/14〕	1.8	<10/1>	6.4	〔10/8〕	1.8	<5/29>	2.8	<4/23>
Sr-90（Approx. 29 years）	—		—		—		—		—		—		—		—		—		—	

* The highest result announced in "Detailed Analysis Results in the Port of Fukushima Daiichi NPS, around Discharge Channel and Bank Protection" or the other handouts is provided.
  As for "1F, North side of Unit 1-4 water intake channel", the data is obtained since January 14, 2013. For the other locations, the data is obtained 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.

* Date of sampling is provided in parentheses. ( ): 2013, < >: 2014

* "-" indicates that the measurement 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 in section 6 of Appendix 2)	60	90	60,000	30
WHO Guidelines for drinking-water quality	10	10	10,000	10