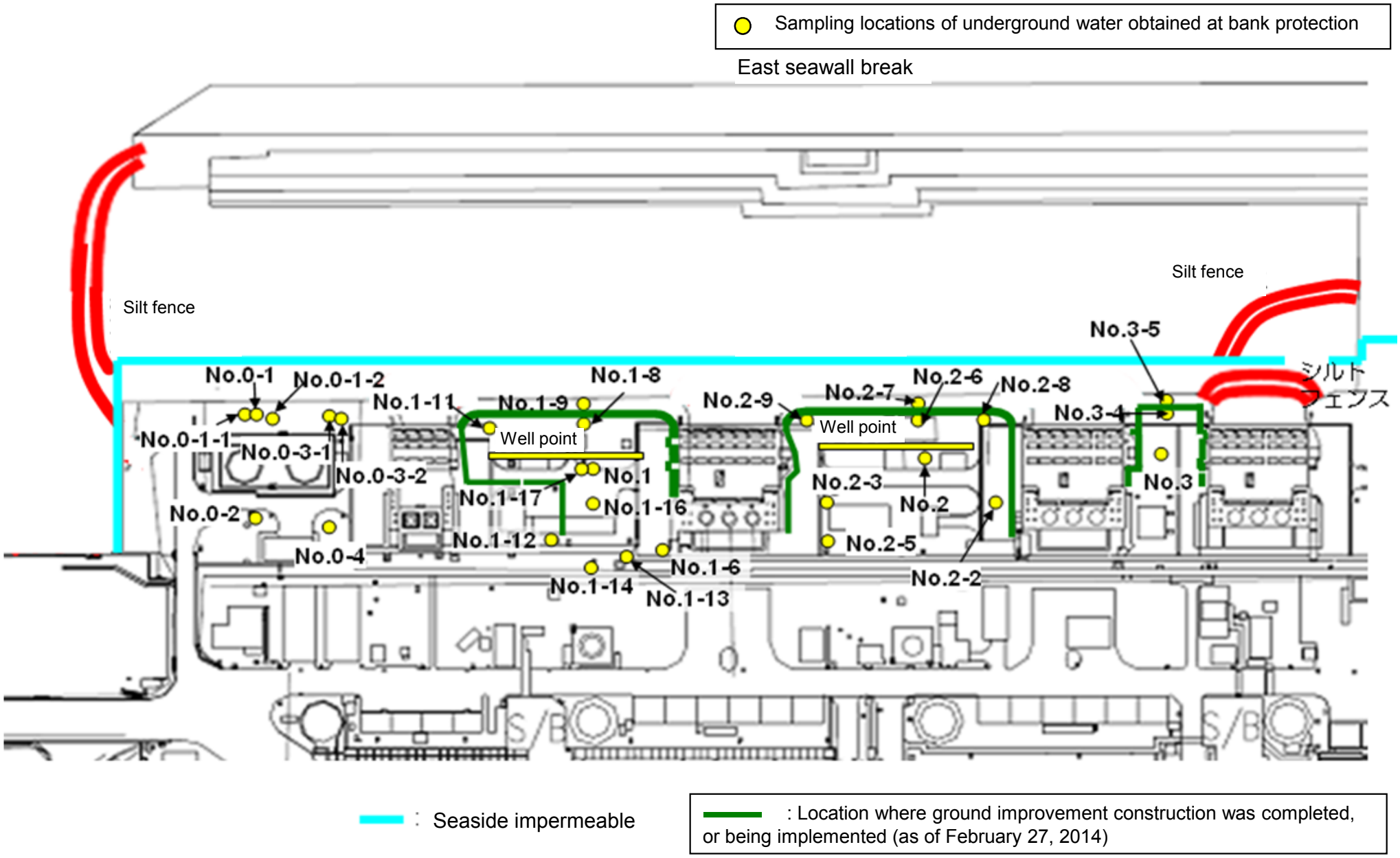
<Reference>
April 17, 2014
Tokyo Electric Power Company

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 (1/2)
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
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）														

	Underground water observation hole No.1-17	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.3-4	Underground water observation hole No.3-5
Date of sampling			Apr 13, 2014	Apr 13, 2014	Apr 13, 2014			Apr 13, 2014	Apr 13, 2014	Apr 13, 2014			
Time of sampling			9:52 AM	11:02 AM	9:30 AM			10:10 AM	11:29 AM	10:00 AM			
Chloride (unit: ppm)			-	-	-			870	-	-			
Cs-134 (Approx. 2 years)			ND(0.37)	11	ND(0.46)			ND(0.48)	ND(0.45)	ND(0.62)			
Cs-137 (Approx.30 years)			0.61	27	ND(0.61)			1.4	ND(0.58)	0.79			
The other γ													
Gross β			280	550	1,000			810	4,200	110,000			
H-3 (Approx. 12 years)			830	450	930			690	1,400	4,900			
Sr-90（Approx. 29 years）			-	-	-			-	-	-			

* Data announced this time is provided in a thick-frame. The other data was announced on April 14.
* "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.

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

	Underground water observation hole No.1-17	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.3-4	Underground water observation hole No.3-5
Date of sampling			Apr 16, 2014	Apr 16, 2014	Apr 16, 2014			Apr 16, 2014	Apr 16, 2014	Apr 16, 2014	Apr 16, 2014	Apr 16, 2014	Apr 16, 2014
Time of sampling			11:18 AM	1:08 PM	10:52 AM			11:38 AM	12:14 PM	10:00 AM	10:55 AM	11:18 AM	10:40 AM
Chloride (unit: ppm)			-	-	-			880	-	-	-	-	3400
Cs-134 (Approx. 2 years)			ND(0.40)	11	ND(0.51)			0.52	ND(0.52)	ND(0.57)	0.58	2.7[*1]	8.8
Cs-137 (Approx.30 years)			1.4	29	0.63			1.6	0.93	1.4	2.3	7.0[*1]	22
The other γ													
Gross β			320	600[*1]	910			870[*1]	4,200	110,000	ND(19)	19[*1]	130
H-3 (Approx. 12 years)			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.
* "-" indicates that the measurement was out of range.
*1 The highest measurement value (compared to the previous values provided in the handouts published in 'Detailed Analysis Results in the Port of Fukushima Daiichi NPS, around Discharge Channel and Bank Protection')

<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*
Cs-134 (Approx. 2 years)		9.8 *2 <3/9>	0.61 <3/2>	ND	0.61 〔10/13〕	0.64 <4/6>	0.82 <1/14>	ND	13 〔8/29〕	1.9 〔7/8〕	11,000 〔7/9〕	10 〔9/2〕	1.5 〔7/8〕	310 〔8/5〕
Cs-137 (Approx.30 years)		25 *2 <3/9>	1.5 <3/2>	0.51 〔11/17〕	2.2 <1/12>	1.1 <4/6>	2.1 <1/14>	1.4 <1/12>	31 〔8/29〕	3.6 〔7/8〕	22,000 〔7/9〕	24 〔9/2〕	3.6 〔7/8〕	650 〔8/5〕
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
	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
	Co-60 (Approx. 5 years)	ND	ND	ND	ND	ND	ND	ND	0.50 〔7/19〕	ND	3.1 〔7/8〕	ND	ND	ND
	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〕
Gross β		300 〔8/22〕	21 〔12/7〕	21 〔11/10〕	87 〔10/13〕	ND	67*1 〔12/11〕	29 〔12/29〕	1,900 〔5/24〕	4,400 〔7/8〕	900,000 〔7/5〕〔7/9〕	160,000 〔8/12〕〔8/15〕	380 〔8/19〕	56,000 〔8/5〕
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〕
Sr-90(Approx. 29 years)		140 〔8/8〕	Under analysis	Under analysis	0.73 〔9/2〕	Under analysis	Under analysis	Under analysis	1,300 〔8/22〕	2,300 〔6/28〕	5,000,000 〔7/5〕	130,000 〔8/8〕	200 〔7/8〕	5,100 〔8/22〕

Unit: Bq/L

		Groundwater observation hole No.1-6	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.1-16	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*
Cs-134 (Approx. 2 years)		6,300 <3/31>	47 〔11/25〕	170 〔9/3〕	-	1.1 <1/13>	74 〔10/21〕	37,000 <2/13>	88 *2 <2/27>	3.1 *1 〔12/13〕	1.2 〔12/5〕	110 〔9/23〕	0.88 <2/26>	0.66 〔9/1〕
Cs-137 (Approx.30 years)		16,000 <3/31>	110 〔11/25〕	380 〔9/3〕	-	2.8 <1/13>	170 〔10/21〕	93,000 <2/13>	230 *2 <2/27>	4.7 <2/17>	1.5 <3/10>	250 〔9/23〕	2.5 <2/26>	1.1 〔8/29〕〔9/1〕
The other γ	Ru-106 (Approx. 370 days)	ND	ND	ND	-	ND	5.4 〔10/28〕	ND	ND	9.2 〔10/28〕	4.1 〔12/12〕	25 〔9/2〕	ND	ND
	Mn-54 (Approx. 310 days)	320 <2/13> <2/17>	12 <2/3>	ND	-	ND	ND	ND	ND	ND	ND	5.9 <3/3>	ND	ND
	Co-60 (Approx. 5 years)	830 <2/20>	1.3 <2/3>	ND	-	ND	0.51 〔10/24〕	ND	ND	0.9 〔11/7〕	0.61 〔11/25〕	ND	ND	ND
	Sb-125 (Approx. 3 years)	ND	ND	ND	-	ND	61 〔10/21〕	ND	ND	12 <4/14>	2.1 〔11/25〕	ND	ND	ND
Gross β		770,000 <3/27>	59,000 <2/3>	2,100 *2 〔11/17〕	78 *2 <1/27>	2,300 〔12/26〕	730 〔10/21〕	260,000 <2/12> <2/13>	1,800 <3/31>	3,100,000 <1/20> <1/30> <2/3>	4,200 <4/14>	700,000 〔9/23〕	1,700 〔7/8〕	380 〔7/29〕
H-3 (Approx. 12 years)		110,000 *2 <2/6>	13,000 <3/31>	860 *2 〔11/14〕	270,000 *2 <1/27>	85,000 〔9/13〕	440,000 〔10/31〕	88,000 <2/12>	23,000 <2/13>	43,000 〔9/26〕	32,000 <1/20>	460,000 〔8/19〕	1,000 <2/23>	440 〔8/26〕
Sr-90(Approx. 29 years)		-	1,300 〔9/16〕	170 〔9/3〕	-	17 〔9/13〕	Under analysis	Under analysis	Under analysis	Under analysis	Under analysis	-	54 〔5/31〕	5.9 〔7/25〕

Unit: Bq/L

		Groundwater observation hole No.2-2	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.3-4	Groundwater observation hole No.3-5
Cs-134 (Approx. 2 years)		15 <2/12>	2.2 <2/26>	25 <2/12>	17 <3/11>	3.5 <2/23>	0.47 <4/9>	-	1.2 <3/9>	3.5 〔7/25〕	1.2 〔7/25〕〔8/8〕	2.2 <4/9>	64 <1/15>
Cs-137 (Approx.30 years)		38 <2/12>	5.5 <2/26>	62 <2/12>	50 <3/11>	9.0 <2/23>	1.3 <4/9>	0.58 *2 <2/11>	3.1 <3/9>	5.9 〔8/8〕	2.6 〔8/1〕	6.1 <4/9>	170 <1/15>
The other γ	Ru-106 (Approx. 370 days)	ND	ND	ND	ND	ND	ND	6.5 *2 <2/11>	ND	ND	ND	ND	-
	Mn-54 (Approx. 310 days)	ND	0.29 〔12/6〕	0.94 <1/8>	ND	ND	ND	-	ND	ND	ND	0.54 〔10/30〕	-
	Co-60 (Approx. 5 years)	ND	ND	ND	ND	ND	ND	-	ND	ND	ND	ND	-
	Sb-125 (Approx. 3 years)	ND	ND	30 <2/12> <4/9>	ND	ND	ND	-	ND	1.6 <1/1>	ND	ND	-
Gross β		570 <3/26> <4/9>	1,500 〔12/6〕	150,000 <2/12>	3,200 〔12/5〕	810 <4/13>	4,200 <4/9>	1,700 *2 <2/7>	240,000 〔12/12〕	1,400 〔7/11〕	180 〔8/1〕	18 <3/12>	300 <4/2>
H-3 (Approx. 12 years)		660 <1/8>	1,700 〔12/6〕	7,900 <4/9>	1,200 〔11/24〕〔11/27〕	1,100 <1/17>	1,700 <4/6>	13,000 *2 <2/7>	5,100 〔12/6〕	3,200 〔2012/12/12〕	460 〔8/1〕	170 〔9/18〕	170 <1/8>
Sr-90(Approx. 29 years)		Under analysis	Under analysis	Under analysis	Under analysis	Under analysis	-	-	-	8.3 〔2012/12/12〕	4.4 〔7/23〕	ND	-

● 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.

<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, Between the water intake channel of Unit 1 and Unit 2 (surface layer)		1F, Between the water intake channel of Unit 1 and Unit 2 (lower layer)		1F, Unit 2 Screen (Inside the Silt Fence)		1F, Between the water intake channel of Unit 2 and Unit 3		1F, Unit 3 Screen (Inside the Silt Fence)		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)	
Cs-134(Approx. 2 years)	1.8	〔6/21〕	2.8	〔12/2〕	5.3	〔8/5〕	32	〔10/11〕	87	〔10/10〕	93	〔10/10〕	370	〔10/9〕	52	〔12/21〕	350	〔7/15〕	28	〔9/16〕	62	〔9/16〕	15	<4/14>
Cs-137(Approx.30 years)	4.5	<3/17>	5.8	〔12/2〕	8.6	〔8/5〕	73	〔10/11〕	200	〔10/10〕	200	〔10/10〕	830	〔10/9〕	110	〔10/11〕 〔12/21〕	770	〔7/15〕	53	〔12/16〕	140	〔9/16〕	35	<3/31>
Gross β	17	<1/6>	46	〔8/19〕	40	〔7/3〕	320	〔8/12〕	1,200	〔12/8〕	450	〔7/16〕 <4/8>	1,700	〔10/9〕	490	<4/14>	1,000	〔7/15〕	450	<4/14>	360	〔10/7〕	380	<3/10>
H-3 (Approx. 12 years)	8.6	〔6/26〕	24	〔8/19〕	340	〔6/26〕	510	〔9/2〕	2,800	〔12/8〕	1,600	〔9/1〕	2,100	〔10/28〕	1,200	〔10/7〕	1,100	<4/7>	1,000	<4/7>	440	<4/7>	290	<3/17>
Sr-90（Approx. 29 years）	5.8	〔6/26〕*1	—		7.4	〔6/26〕*1	220	〔8/19〕	480	〔10/14〕	480	〔8/22〕	290	〔10/20〕	430	〔10/14〕	340	〔10/14〕	120	〔9/23〕	190	〔9/23〕	130	〔9/23〕

Unit: Bq/L

	1F, Around the south discharge channel		1F, Port entrance		1F, East side in the port		1F, West side in the port		1F, North side in the port		1F, South side in the port		North side of the north breakwater		Northeast side of the port entrance		East side of the south breakwater		Southeast side of the north breakwater		South side of the south breakwater	
Cs-134(Approx. 2 years)	ND		3.3	〔12/24〕	3.3	〔10/17〕	4.4	〔12/24〕	5.0	〔12/2〕	3.5	〔10/17〕	ND		ND		ND		ND		ND	
Cs-137(Approx.30 years)	3.0	〔7/15〕	7.3	〔10/11〕	9.0	〔10/17〕	10	〔12/24〕	8.4	〔12/2〕	7.8	〔10/17〕	ND		ND		1.6	〔10/18〕	ND		ND	
Gross β	15	<1/13>	69	〔8/19〕	74	〔8/19〕	60	〔7/4〕	69	〔8/19〕	79	〔8/19〕	ND		ND		ND		ND		ND	
H-3 (Approx. 12 years)	1.9	〔11/25〕	68	〔8/19〕	67	〔8/19〕	59	〔8/19〕	52	〔8/19〕	60	〔8/19〕	4.7	〔8/14〕	ND		6.4	〔10/8〕	ND		ND	
Sr-90（Approx. 29 years）	0.36	〔6/26〕*1	49	〔8/19〕	-		-		-		-		-		-		-		-		-	

* 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.

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

*1 Since reanalysis is ongoing, the figures are just for a reference.

* "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