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)

Sampling locations of underground water obtained at bank East seawall break Silt fence Silt fence Silt fence No.2-9 Silt fence No.0-1-2 No.2-6 No.0-1 No.1-8 No. 3-5 No. 2-7 No.1-9 O No.0-1-1 No.0-3-1 No. 3-4🗖 Well point No.0-3-2 No. 1 No.2-3-No. 3 No.1-17 ONo.1-16 No.2 No.0-275 No.1-12 🔿 No.2-5 No.1-6 No.2-2 No.1-14 No.1-13

: Location where ground improvement construction was completed, or being implemented (as of January 31, 2014)

Detailed Analysis Results in the Port of Fukushima Daiichi NPS, around Discharge Channel and Bank Protection (1/4) 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	/	/	1 /	1 /	1 /	1 /	1 /	1 /	/	Feb 23, 2014	/	1 /	/	1
	Time of sampling										9:40 AM				
	Chloride (unit: ppm)										270				
С	s-134 (Approx. 2 years)										4.5				
С	s-137 (Approx.30 years)										13.00				
The															
other γ															
	Gross β										94				
	H-3 (Approx. 12 years)			/	/	/			/	/	360		/	/	
S	r-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	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	/	/	/	/	/	/	/	/	/	/	/	1
	Time of sampling					/		/	/				
	Chloride (unit: ppm)												
С	s-134 (Approx. 2 years)												
Cs	s-137 (Approx.30 years)												
	Ru-106 (Approx. 370 days)												
The													
other y													
	Gross β												
ŀ	H-3 (Approx. 12 years)				/	/			/		/	/	
Si	r-90 (Approx. 29 years)		/	/	/						/	/	/

^{*} Data announced this time is provided in a thick-frame. The other data was announced on February 12.

^{* &}quot;ND" indicates that the measurement result is below the detection limit, and the detection limit of each nuclide is provided in parentheses.

^{* &}quot;-" indicates that the measurement was out of range.

^{*} The results obtained on in the observation hole No.2-9 are for a reference, since the water was highly turbid. (γ and Gross β will be measured after filtration. If filtration takes a long time, γ will not be measured.)

Detailed Analysis Results in the Port of Fukushima Daiichi NPS, around Discharge Channel and Bank Protection (2/4) Underground Water Obtained at Bank Protection

Unit: Bq/L (exclude chlorid

		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	/	1	1 /	1	1 /	1 /	1 /	1	1 /	Feb 25, 2014	/	1	/	1
	Time of sampling										7:13 AM				/
	Chloride (unit: ppm)										260				
С	s-134 (Approx. 2 years)										8.7				
С	s-137 (Approx.30 years)										24				
The															
other y															
	Gross β										140				
	H-3 (Approx. 12 years)						/	/			Under analysis	/			
S	r-90 (Approx. 29 years)	/		/		/	/	/		/	-	/			/

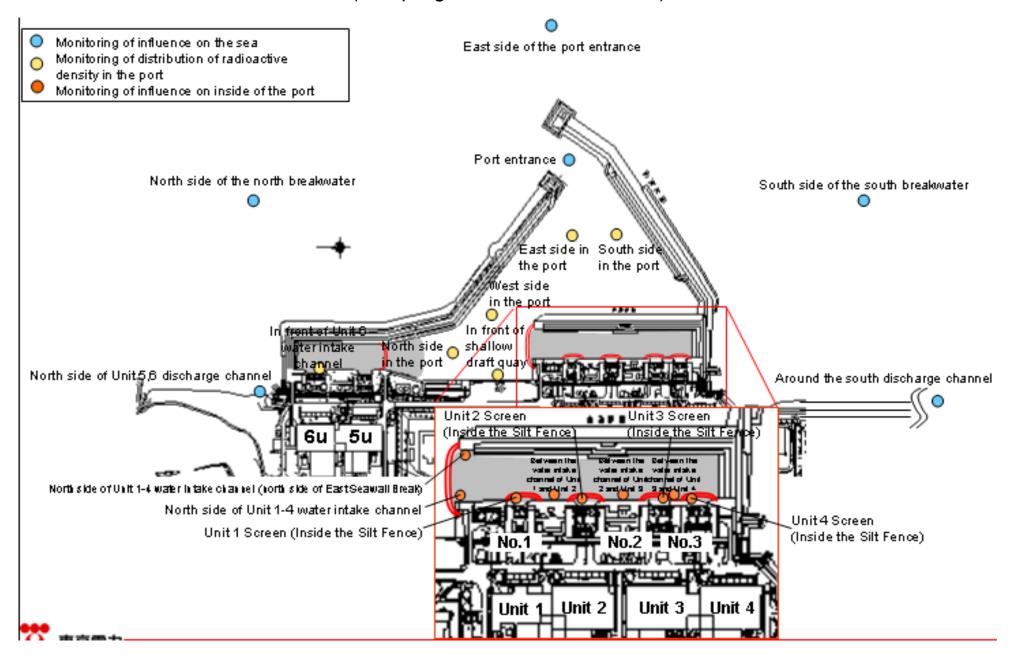
		Underground water observation hole No.1-17	Groundwater pumped up from the well point (between Unit 1 and 2)	Underground water observation hole No.2	Underground water observation hole No.2-2	Underground water observation hole No.2-3	Underground water observation hole No.2-5	Underground water observation hole No.2-6	Underground water observation hole No.2-7	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	/	1	/	/	/	/	/	/	/	/	/	
	Time of sampling				/			/					
	Chloride (unit: ppm)												
C	s-134 (Approx. 2 years)												
Cs	s-137 (Approx.30 years)												
	Mn-54 (Approx. 310 days)												
The	Sb-125 (Approx. 3 years)												
other y													
	Gross β												
ŀ	H-3 (Approx. 12 years)				/								
Sı	r-90 (Approx. 29 years)			/							/	/	

^{* &}quot;ND" indicates that the measurement result is below the detection limit, and the detection limit of each nuclide is provided in parentheses.

 $^{^{\}star}$ "-" indicates that the measurement was out of range.

^{*1} The highest dose among the results previously announced in the "Detailed Analysis Results in the Port of Fukushima Daiichi NPS, around Discharge Channel and Bank Protection".

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 (3/4) 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	1F, North side of Unit 1-4 water intake channel (north side of East Seawall Break)	1F, Unit 1 Screen (Inside the Silt Fence)	water intake channel of Unit 1	1F, Between the water intake channel of Unit 1 and Unit 2 (lower layer)	1F, Unit 2 Screen	1F, Between the water intake channel of Unit 2 and Unit 3	Screen	1F, Between the water intake channel of Unit 3 and Unit 4	Specified by the	WHO Guideline s for drinking- water quality
Date of Sampling			/	Feb 23, 2014			Feb 23, 2014	Feb 23, 2014	/	/				
Time of sampling				7:48 AM			7:27 AM	7:27 AM						
Cs-134(Approx. 2 years)				14			10	11					60	10
Cs-137(Approx.30 years)				42			37	30					90	10
Gross β				540			440	110						
H-3 (Approx. 12 years)				1,400			1,200	210					60,000	10,000
Sr-90 (Approx. 29 years)			/	-			-	-	/	/		/	30	10

													ι	Jnit: Bq/L
	1F, Unit 4 Screen (Inside the Silt Fence)	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		North side of the north breakwater		East side of the port entrance	Southeast side of the port entrance	South side of the south breakwater	Density Limit Specified by the Reactor Regulatio n *	WHO Guideline s 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

^{* &}quot;ND" indicates that the measurement result is below the detection limit, and the detection limit of each nuclide is provided in parentheses.

^{* &}quot;-" 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 to Bq/L]).

Detailed Analysis Results in the Port of Fukushima Daiichi NPS, around Discharge Channel and Bank Protection (4/4) 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	1F, North side of Unit 1-4 water intake channel (north side of East Seawall Break)	1F, Unit 1 Screen (Inside the Silt Fence)	water intake	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	Density Limit Specified by the Reactor Regulatio n *	WHO Guidelines for drinking- water quality
Date of Sampling			/	Feb 25, 2014		/	Feb 25, 2014	Feb 25, 2014			/			
Time of sampling				7:26 AM			7:14 AM	7:14 AM						
Cs-134(Approx. 2 years)				18			14	13					60	10
Cs-137(Approx.30 years)				44			39	30			/		90	10
Gross β				410			490	130						
H-3 (Approx. 12 years)				Under analysis			Under analysis	Under analysis			/		60,000	10,000
Sr-90 (Approx. 29 years)	/	/	/	-	/	/	-	-	/	/	/	V	30	10

Unit: Bq/L

	1F, Unit 4 Screen (Inside the Silt Fence)	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 port entrance	Southeast side of the port entrance	South side of the south breakwater	Density Limit Specified by the Reactor Regulatio n *	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)	/	/	/	/	/	V	/	/	/		/	/	30	10

^{* &}quot;ND" indicates that the measurement result is below the detection limit, and the detection limit of each nuclide is provided in parentheses.

^{* &}quot;-" 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]).

<Reference> The Highest Dose Until the Previous Measurement (Groundwater Obtained at Bank Protection)

																											Unit: Bq/L
		observa	dwater tion hole .0-1	observa	dwater tion hole 0-1-1	observa	idwater ition hole 0-1-2	observa	ndwater ation hole 5.0-2	observa	ndwater ation hole 0-3-1	observa	idwater ition hole 0-3-2	observa	dwater tion hole .0-4	Ground observat No	tion hole	Ground observati No.	ion hole	Ground observat No.	ion hole	Ground observat No.1	ion hole	Ground observati No.	tion hole	Ground observat No.	tion hole
С	s-134 (Approx. 2 years)	7.9 *2	<2/23>	ND		ND		0.61	[10/13]	0.44	[11/24]	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]
C	:-137 (Approx.30 years)	20 *2	<2/23>	0.58	[12/7]	0.51	[11/17]	2.2	<1/12>	0.86	[11/20]	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]
	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	
The	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	
other y	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]
ı	I-3 (Approx. 12 years)	45,000	(8/29)	18,000	[12/7]	74,000	[12/15] <1/19>	6,400	<1/26>	ND		76,000	<2/6>	52,000	<2/16>	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)
9	r-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
		Ground observat No.	ion hole	observa	dwater tion hole .1-8	Groun observa No.		Ground observati No.1	ion hole	observa	ndwater ition hole 1-11	observa	dwater tion hole 1-12	Ground observati No.		observa	dwater tion hole 1-14	Ground observat No.	ion hole	observa	dwater tion hole 1-17	Ground pumped the wel (betwee and	up from II point n Unit 1
С	s-134 (Approx. 2 years)	2,900	<2/17> <2/20>	47	[11/25]	170	[9/3]	-		1.1	<1/13>	74	[10/21]	37,000	<2/13>	5.4	<2/17>	3.1 *1	[12/13]	1.2	[12/5]	110	[9/23]
C	s-137 (Approx.30 years)	7,300	<2/17>	110	[11/25]	380	[9/3]	-		2.8	<1/13>	170	[10/21]	93,000	<2/13>	13	<2/17>	4.7	<2/17>	1.0	<2/20>	250	[9/23]
	Ru-106 (Approx. 370 days)	ND		ND		ND		1		ND		5.4	[10/28]	ND		ND		9.2	[10/28]	4.1	[12/12]	25	[9/2]
The	Mn-54 (Approx. 310 days)	320	<2/13> <2/17>	12	<2/3>	ND		1		ND		ND		ND		ND		ND		ND		4.4	<2/24>
other y	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	
	Sb-125 (Approx. 3 years)	ND		ND		ND		-		ND		61	[10/21]	ND		ND		11	[12/5]	2.1	[11/25]	ND	
	Gross β	760,000	<2/17>	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>	730	<1/30>	3,100,000	<1/20> <1/30> <2/3>	130	[12/2] [12/23]	700,000	[9/23]
	H-3 (Approx. 12 years)	110,000	<2/6>	12,000	<1/6> <2/3>	860 *2	[11/14]	270,000	<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]
S	r-90(Approx. 29 years)	-		1,300	[9/16]	170	[9/3]	-		17	[9/13]	Under analysis		Under analysis		Under analysis	<u> </u>	Under analysis		Under analysis	<u> </u>	-	

																										Unit: Bq/L
		observa	ndwater ation hole o.2	observa	ndwater ation hole .2-1*	observa	idwater ition hole .2-2	observa	ndwater ation hole 0.2-3	observa	dwater tion hole .2-5	Groun observa No		observa	dwater tion hole .2-7	Groundwater observation hole No.2-9	the we	up from	observa	ndwater ation hole lo.3	observa	ndwater ation hole .3-1*	observa	ndwater ation hole b.3-4	observa	dwater tion hole .3-5
(Cs-134 (Approx. 2 years)	0.50	[7/9]	0.66	[9/1]	15	<2/12>	0.84	<1/5>	25	<2/12>	5.0	<2/25>	3.5	<2/23>	-	1.1	[12/12]	3.5	[7/25]	1.2	(7/25) (8/8)	1.9	<1/8>	64	<1/15>
C	s-137 (Approx.30 years)	1.2	(7/11) (8/1)	1.1	(8/29) (9/1)	38	<2/12>	2.6	<1/5>	62	<2/12>	12	<2/25>	9.0	<2/23>	0.58 * 2 <2/11>	2.6	<2/16>	5.9	[8/8]	2.6	[8/1]	4.5	<2/19>	170	<1/15>
	Ru-106 (Approx. 370 days)	ND		ND		ND		ND		ND		ND		ND		6.5 * 2 <2/11>	ND		ND		ND		ND		-	
The	Mn-54 (Approx. 310 days)	ND		ND		ND		0.29	[12/6]	0.94	<1/8>	ND		ND		-	ND		ND		ND		0.54	[10/30]	-	
other \	Co-60 (Approx. 5 years)	ND		ND		ND		ND		ND		ND		ND		1	ND		ND		ND		ND		1	
	Sb-125 (Approx. 3 years)	ND		ND		ND		ND		30	<2/12>	ND		ND		1	ND		1.6	<1/1>	ND		ND		ı	
	Gross β	1,700	[7/8]	380	[7/29]	540	<1/29>	1,500	[12/6]	150,000	<2/12>	3,200	[12/5]	350	<2/21>	1,700*2 <2/7>	240,000	[12/12]	1,400	[7/11]	180	[8/1]	ND		69	<1/29>
	H-3 (Approx. 12 years)	870	[12/8]	440	[8/26]	660	<1/8>	1,700	[12/6]	6,300	[12/4]	1,200	[11/24] [11/27]	1,100	<1/17>	*2 13,000 <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)	54	[5/31]	5.9	[7/25]	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. (measured after filtration.)

^{* &}quot;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

		side of Unit 5,6 ge channel		ont of Unit 6 ake channel		t of shallow quay		de of Unit 1-4 ake channel	water into	ide of Unit 1-4 ake channel ide of East all Break)		t 1 Screen e Silt Fence)	intake char	en the water nnel of Unit 1 surface layer	intake cha			2 Screen : Silt Fence)	intake char	en the water nnel of Unit 2 Unit 3		3 Screen e Silt Fence)	intake cha	en the water nnel of Unit 3 Unit 4
Cs-134(Approx. 2 years)	1.8	[6/21]	2.8	[12/2]	5.3	[8/5]	89	[10/10]	32	[10/11]	73	[10/10]	87	[10/10]	93	[10/10]	370	[10/9]	52	[12/21]	350	(7/15)	28	[9/16]
Cs-137(Approx.30 years)	3.3	[6/26]	5.8	[12/2]	8.6	[8/5]	190	[10/10]	73	[10/11]	170	[10/10]	200	[10/10]	200	[10/10]	830	[10/9]	110	[10/11] [12/21]	770	[7/15]	53	[12/16]
Gross β	17	<1/6>	46	(8/19)	40	[7/3]	1,400	[11/7]	320	[8/12]	740	[10/28]	1,200	[12/8]	450	[7/16]	1,700	[10/9]	480	[10/7]	1,000	(7/15)	390	[8/12]
H-3 (Approx. 12 years)	8.6	[6/26]	24	[8/19]	340	[6/26]	4,800	[11/7]	510	[9/2]	2,800	[10/28]	2,800	[12/8]	1,600	[9/1]	2,100	[10/28]	1,200	[10/7]	410	[9/2]	650	[8/12]
Sr-90 (Approx. 29 years)	5.8	*1 (6/26)	-		7.4	(6/26) ^{*1}	720	[9/22]	220	[8/19]	480	[10/14]	480	[8/22]	290	[10/20]	430	[10/14]	340	[10/14]	120	[9/23]	190	[9/23]

Unit: Bq/L

	1F, Unit 4 Screen (Inside the Silt Fence)		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		d 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)	62	(9/16)	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)	140	[9/16]	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	360	[10/7]	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)	400	(8/12) (10/7)	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)	130	[9/23]	0.36	*1 [6/26]	49	[8/19]	-		-		-		- 1		÷	-	-	-	-

^{*} 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.

[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

[•] 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.

 $^{^{\}star}$ "ND" indicates that the measurement result is below the detection limit.

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

^{* &}quot;-" indicates that the measurement was out of range.