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 (1/3) Underground Water Obtained at Bank Protection

														Unit: Bq	/L (exclude chlor
		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	Undergroun water observa hole No.1-1
	Date of sampling	/	,	1	1	1	/	/	/	/	1	1	1	1	Λ
	Time of sampling		/		/					/		/		/	
	Chloride (unit: ppm)	/								/					,
С	s-134 (Approx. 2 years)														
C:	s-137 (Approx.30 years)														
The															
other y							/								
							/								
	Gross β														
ı	H-3 (Approx. 12 years)	/	/				/			/				/	1/
S	r-90 (Approx. 29 years)		/	/			/		/	/		/	/	/	/
					1			1	1	<u>'</u>				1	- -
		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.2-9*	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	n
	Date of sampling	/	,	1	1	1	/	1	/	Feb 11, 2014	/	1	1	1	
	Time of sampling	/	/		/					12:44 PM	/	/			
	Chloride (unit: ppm)									-					
С	s-134 (Approx. 2 years)									ND(0.46)					
C	s-137 (Approx.30 years)									0.58					1
	Ru-106 (Approx. 370 days)									6.5					1
The															1
other y															1
															1
	Gross β									1,200		1/	1/		1
ı	H-3 (Approx. 12 years)		/	1/	/			/	/	13,000	1/	1/	1/		1
-		l <i>/</i>	H	1/	1/	+/	l /	1/	+/		+/	1/	+/	t	4
S	r-90 (Approx. 29 years)	V	/	V	/	/	V	/	/	Under analysis	/	V	/		

^{*} 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 (2/3) 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	
	Time of sampling				/				/			/			/
	Chloride (unit: ppm)														
Cs	-134 (Approx. 2 years)														
Cs	137 (Approx.30 years)														
The															
other γ															
•															
	Gross β														
Н	-3 (Approx. 12 years)					/	/					/			/
Sr-	90 (Approx. 29 years)	V													

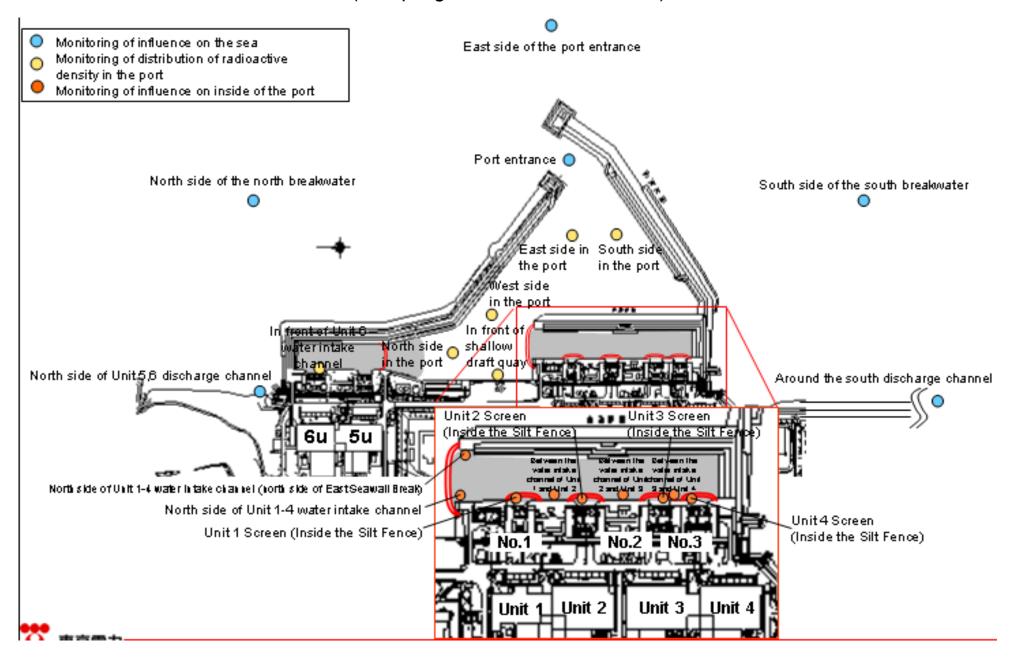
		Underground water observation hole No.1-17	Groundwater pumped up from the well point (between Unit 1 and 2)	Underground water observation hole No.2	Underground water observation hole No.2-2	Underground water observation hole No.2-3	Underground water observation hole No.2-5	Underground water observation 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	Feb 12, 2014	Feb 12, 2014	Feb 12, 2014	Feb 12, 2014	/	Feb 12, 2014	Feb 12, 2014	Feb 12, 2014	Feb 12, 2014	Feb 12, 2014
	Time of sampling	/		10:15 AM	11:20 AM	9:38 AM	9:36 AM		10:37 AM	10:00 AM	11:17 AM	10:55 AM	10:49 AM
	Chloride (unit: ppm)			-	-	-	-		780	-	-	-	185
C	s-134 (Approx. 2 years)			ND(0.41)	15 ^{*1}	ND(0.41)	25 ^{*1}		ND(0.45)	ND(0.55)	0.49	1.3	19
Cs	s-137 (Approx.30 years)			ND(0.54)	38 ^{*1}	ND(0.52)	62 ^{*1}		1.2	0.78	1.7	3.1	50
	Mn-54 (Approx. 310 days)			ND	ND	ND	0.85		ND	ND	ND	ND	ND
The	Sb-125 (Approx. 3 years)	/		ND	ND	ND	30 ^{*1}		ND	ND	ND	ND	ND
other y													
	Gross β			360	450	1,500	150,000 ^{*1}		210	130,000	ND(15)	17 ^{*1}	28
ŀ	H-3 (Approx. 12 years)	/	1/	Under analysis	Under analysis	Under analysis	Under analysis		Under analysis	Under analysis	Under analysis	Under analysis	Under analysis
Sı	-90 (Approx. 29 years)	/	7	-	-	-	-	/	-	-	-	-	-

^{* &}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 (3/3) 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	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	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			/				/		/		/			
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	/	/	V	/	/	/	/	/	V	/	/	30	10

Unit: Bq/L

	1F, Unit 4 Screen (Inside the Silt Fence)	1F, Around the south discharge channel	1 POR	1F, East side in the port	1F, West side in the port	1F, North side in the port		North side of the north breakwater	of the nort	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*	s tor drinking-
Date of Sampling	/	/	/	/	/	/	/	Feb 11, 2014	Feb 11, 2014	Feb 11, 2014	Feb 11, 2014	Feb 11, 2014		
Time of sampling	/							10:31 AM	10:37 AM	10:43 AM	10:50 AM	10:57 AM		
Cs-134(Approx. 2 years)								ND(0.73)	ND(0.74)	ND(0.77)	ND(0.83)	ND(0.83)	60	10
Cs-137(Approx.30 years)								ND(0.59)	ND(0.65)	ND(0.59)	ND(0.81)	ND(0.76)	90	10
Gross β								ND(15)	ND(15)	ND(15)	ND(15)	ND(15)		
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

^{* &}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]).

<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	dwater ition hole 0-3-2	observa	dwater tion hole .0-4	Ground observat No	tion hole	Ground observat No.	ion hole	Ground observat No.	ion hole	Ground observat No.	ion hole	Groun observa No.	tion hole	Ground observat No.	tion hole
С	s-134 (Approx. 2 years)	7.6	[12/15]	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]
С	s-137 (Approx.30 years)	19 ^{*3}	<1/26>	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		0.62	<2/3>	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 ^{*2}	[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>	6,400	<1/26>	ND		76,000	<2/6>	48,000	<1/26> <2/3>	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]
5	Gr-90(Approx. 29 years)	140	[8/8]	Under analysis		Under analysis		0.73	[9/2]	Under		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	observa	idwater ition hole i.1-8	Groundwa observation No.1-9	hole	Groundwater observation hole No.1-10	observa	ndwater ation hole .1-11	observa	ndwater ation hole .1-12	observa	dwater tion hole 1-13	observa	ndwater ation hole 1-14	observa	dwater tion hole 1-16	observa	ndwater ution hole 1-17	Ground pumped the wel (between and	up from I point n Unit 1
(s-134 (Approx. 2 years)	-	47	[11/25]	170 (9/3]	-	1.1	<1/13>	74	[10/21]	22,000	<2/12>	1.2 *2	[11/14]	3.1 *2	[12/13]	1.2	[12/5]	110	[9/23]
C	s-137 (Approx.30 years)	-	110	[11/25]	380 [9/3]	-	2.8	<1/13>	170	[10/21]	54,000	<2/12>	2.3	[11/21]	3.4	[10/10]	0.66	[12/12]	250	[9/23]
	Ru-106 (Approx. 370 days)	-	ND		ND		-	ND		5.4	[10/28]	ND		ND		9.2	[10/28]	4.1	[12/12]	25	[9/2]
The	Mn-54 (Approx. 310 days)	-	12	<2/3>	ND		-	ND		ND		ND		ND		ND		ND		1.1	<2/10>
other \	Co-60 (Approx. 5 years)	-	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		61	[10/21]	ND		ND		11	[12/5]	2.1	[11/25]	ND	
	Gross β	*4 560,000 <2/6>	59,000	<2/3>	2,100 *4 [1	1/17]	78 *4 <1/27>	2,300	[12/26]	730	[10/21]	260,000	<2/12>	440	<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 (1	1/14]	270,000 *4 <1/27>	85,000	[9/13]	440,000	[10/31]	Under analysis	<2/12>	19,000	<2/3> <2/6>	43,000	[9/26]	32,000	<1/20>	460,000	[8/19]
:	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		-	

																										Unit: Bq/L
		observa	idwater ition hole o.2	observa	ndwater ition hole .2-1*	Ground observat No.	tion hole	observa	dwater tion hole .2-3	observa	dwater tion hole .2-5	observa	ndwater ation hole 0.2-6	observa	dwater tion hole .2-7	Groundwater observation hole No.2-9	pumpe the w (between	indwater ed up from vell point een Unit 2 nd 3)	observ	ndwater ation hole No.3	observa	ndwater ation hole i.3-1	observa	ndwater ation hole 0.3-4	observa	idwater ition hole .3-5
С	s-134 (Approx. 2 years)	0.50	[7/9]	0.66	[9/1]	14	<2/2>	0.84	<1/5>	13	<1/8>	0.56	[10/30]	1.5	<1/12>	=	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)	34	<1/29>	2.6	<1/5>	30	<1/8>	0.71	<1/30>	3.6	<1/12>	0.58*3 <2/11>	2.4	[12/7]	5.9	[8/8]	2.6	[8/1]	4.3	[11/27]	170	<1/15>
	Ru-106 (Approx. 370 days)	ND		ND		ND		ND		ND		ND		ND		6.5 *3 <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 y	Co-60 (Approx. 5 years)	ND		ND		ND		ND		ND		ND		ND		=	ND		ND		ND		ND		-	
	Sb-125 (Approx. 3 years)	ND		ND		ND		ND		26 *1	[9/29]	ND		ND		=	ND		1.6	<1/1>	ND		ND		-	
	Gross β	1,700	[7/8]	380	[7/29]	540	<1/29>	1,500	[12/6]	46,000 *1	1 (9/29)	3,200	[12/5]	270	[12/20]	1,700*4 <2/7>	240,000	[12/12]	1,400	[7/11]	180	[8/1]	ND		69	<1/29>
ı	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>	*4 13,000 <2/7>	5,100	[12/6]	3,200	(2012/12/ 12)	460	[8/1]	170	[9/18]	170	<1/8>
S	r-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 The analysis result of No.2-5 obtained on September 29 is the reference value, since we could not sample groundwater by a regular procedure.

2 Analysis result of pumped water.

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

4 The results are for a reference, since the water was highly turbid. (γ and Gross β were measured after filtration. If filtration takes a long time, γ will not be analyzed.)

^{* &}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		ide of Unit 1- ake channel	4 water int (north si	side of Unit 1- take channel ide of East all Break)		1 Screen e Silt Fence)	intake char and Unit	en the water inel of Unit 1 2 (surface yer)	intake cha	en the water nnel of Unit 1 (lower layer)		2 Screen Silt Fence)	intake chan	en the water nel of Unit 2 Unit 3	1F, Unit (Inside the	3 Screen Silt Fence)	intake char	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	*1 (6/26)	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

		4 Screen e Silt Fence)		nd the south ge channel	1F, Por	t entrance	1F, East si	de in the port	1F, West s	ide in the port	1F, North s	ide in the port		side in the ort	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]	-		-		-		-		-	-	-	-	-

^{*} 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.

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

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

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