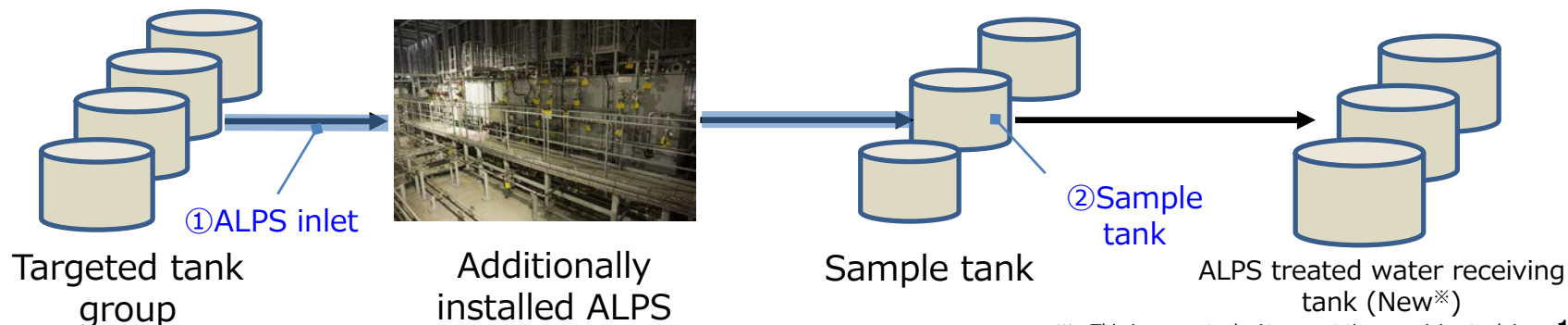


- Since September 15, 2020, we have been treating approximately 1,000m<sup>3</sup> of water from both the J1-C group (sum of ratios of legally required concentrations for the primary seven nuclides: 3,791 (J1-C1)) and the J1-G group (sum of ratios of legally required concentrations for the primary seven nuclides:153 (J1-G1)) (Total: Approx. 2,000m<sup>3</sup>) out of the tank groups for which the sum of the ratios of legally required concentrations <sup>※1</sup>, excluding tritium, exceeds 100. <[Announced on September 10, 2020](#)>
- Water sampled before and after secondary treatment from the J1-C group has been analyzed for the primary seven nuclides + strontium-89<sup>※2</sup> and we have confirmed that compared with prior to secondary treatment, the concentration of radioactive substances after secondary treatment (sample tank) is lower. <[Announced on October 15 2020](#)>
- Analysis for the primary 7 nuclides+strontium-89<sup>※2</sup> on water taken from the J1-G group has been completed and it was confirmed that the concentration of radioactive substances after secondary treatment is lower.  
**(Sum of ratios of legally required concentrations for Primary 7 nuclides+Strontium-89: [Before] 351 → [After] 0.049)**
- Furthermore, water from the J1-C group has been analyzed for the nuclides targeted for removal excluding nickel-63/cadmium-113m (52 nuclides) + carbon-14 and tritium in addition to the primary 7 nuclides+strontium-89, and it was confirmed that the sum of ratios of legally required concentrations excluding tritium is less than 1 in the post-treated water.  
**(Sum of ratios of legally required concentrations for the nuclides targeted for removal + carbon-14 excluding nickel-63/cadmium-113m: [Before] 2,406 → [After] 0.35)**
- We will continue to perform analysis/assessments on the remaining nuclides to be measured (J1-C group: 2 nuclides, J1-G group: 56 nuclides)

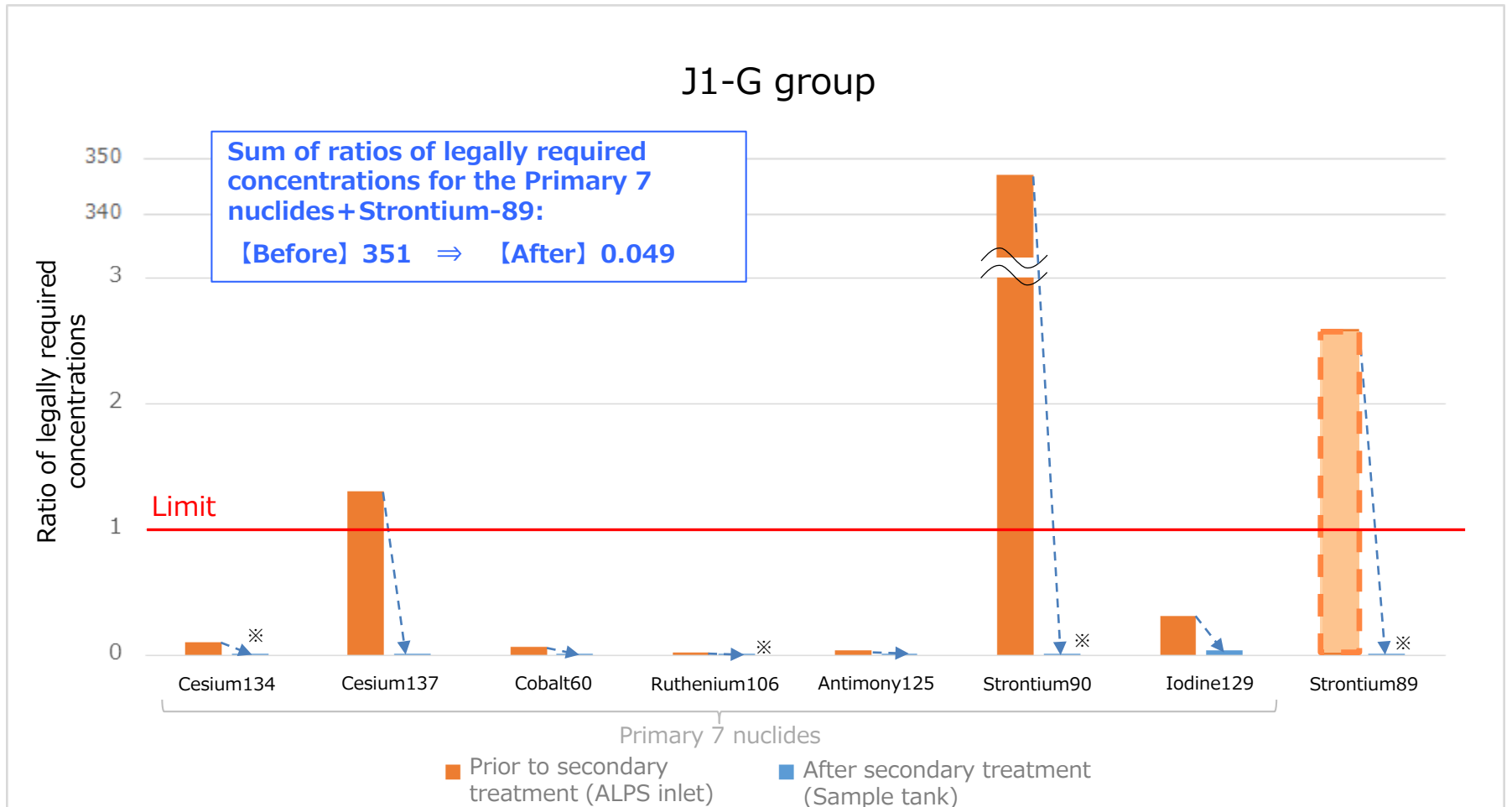
※1 : The concentration ratios of concentrations required by law that have been stipulated for each radioactive substance are calculated and totaled

※2 : Analysis results strontium-89 can be obtained simultaneously with the results strontium-90



※ : This is a new tank. At current time receiving tank is being used to store other ALPS-treated water

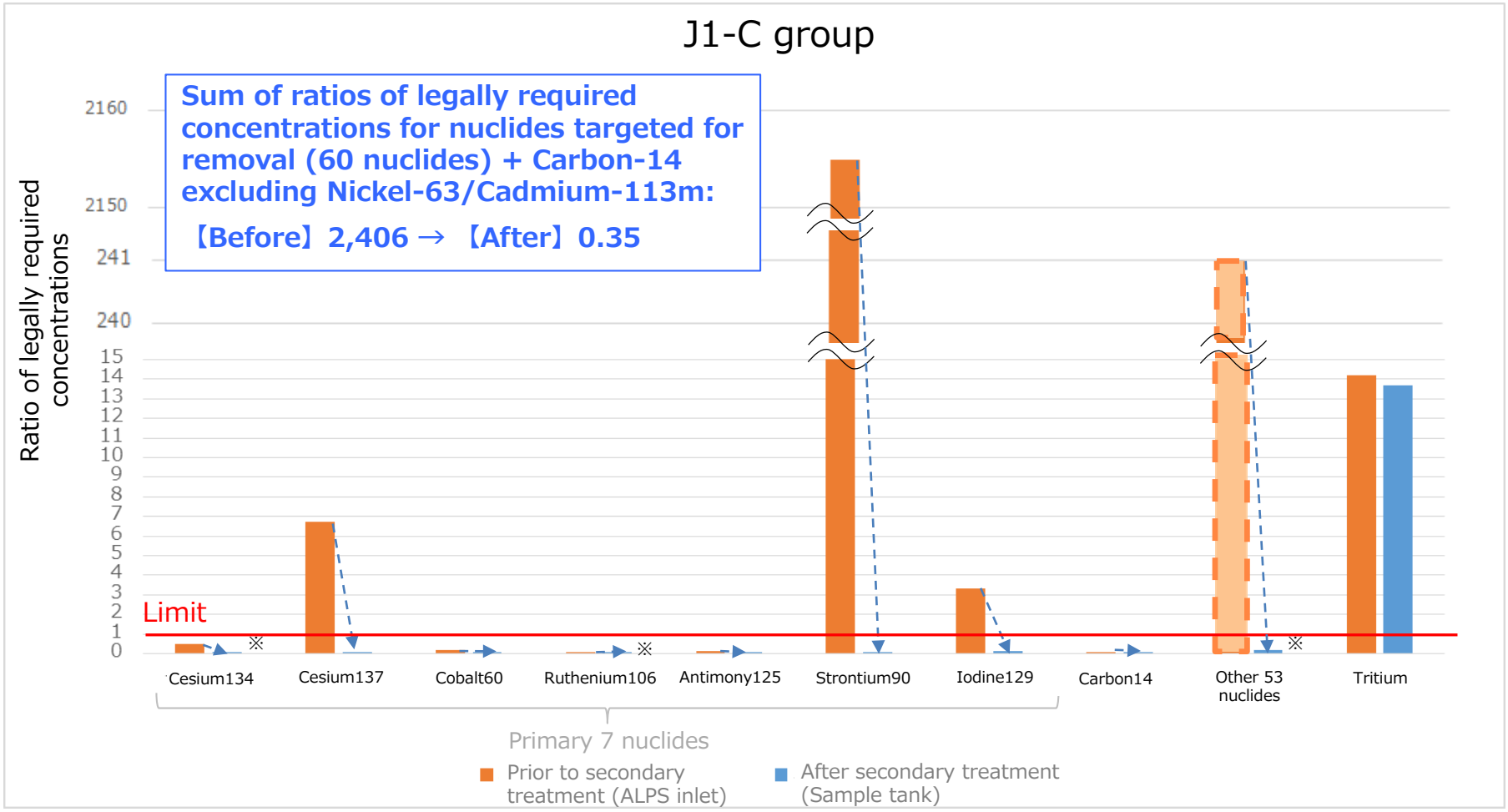
<Reference> Comparison of the concentrations of radioactive substances before and after secondary treatment  
 【J1-G group (Primary 7 nuclides + Strontium-89)】



※ Detectable limits are used for nuclides for which the analysis results were below detectable limits

<Reference> Comparison of the concentrations of radioactive substances before and after secondary treatment

J1-C group (Nuclides targeted for removal (60 nuclides)+Carbon-14+Tritium excluding Nickel-63/Cadmium-113m)



※ Detectable limits are used for nuclides for which the analysis results were below detectable limits

# <Reference> Secondary Treatment Performance Confirmation Test Results (J1-G group (Primary 7 nuclides + Strontium-89) )

		Prior to secondary treatment (ALPS inlet) <sup>※1</sup>		After secondary treatment (Sample tank) <sup>※2</sup>	
	Concentrations required by law [Bq/l]	Analysis results [Bq/l] <sup>※3</sup>	Ratio of legally required concentrations <sup>※4</sup>	Analysis results [Bq/l] <sup>※3</sup>	Ratio of legally required concentrations <sup>※4</sup>
Cesium-134	60	5.94	0.10	ND (0.0665)	0.0011
Cesium-137	90	118	1.3	0.329	0.0037
Cobalt-60	200	13.1	0.065	0.233	0.0012
Ruthenium-106	100	ND (2.27)	0.023	0.483	0.0048
Antimony-125	800	32.3	0.040	0.137	0.00017
Strontium-90	30	10,400	347	ND (0.0318)	0.0011
Iodine-129	9	2.79	0.31	0.328	0.036
Strontium-89	300	ND (787)	2.6	ND (0.0452)	0.00015
Sum of the ratios of legally required concentrations for the 8 nuclides mentioned above			351		0.049

※1 Specimens sampled on October 5, 6, and 7 were mixed/agitated analyzed

※2 Specimens sampled on October 13 were analyzed

※3 "ND" indicates that results were below detectable limits and the detectable limits are noted in parentheses

※4 Detectable limits are used for calculation for nuclides for which the analysis results were below detectable limits

## <Reference> Secondary Treatment Performance Confirmation Test Results

(J1-C group(Nuclides targeted for removal (60 nuclides)+Carbon-14+Tritium excluding Nickel-63/Cadmium-113m)

	Concentrations required by law [Bq/l]	Prior to secondary treatment (ALPS inlet) <sup>※1</sup>		After secondary treatment (sample tank) <sup>※2</sup>	
		Analysis results [Bq/l] ※3	Ratio of legally required concentrations <sup>※4</sup>	Analysis results [Bq/l] ※3	Ratio of legally required concentrations <sup>※4</sup>
Cesium-134	60	29.3	0.49	ND (0.0760)	0.0013
Cesium-137	90	599	6.7	0.185	0.0021
Cobalt-60	200	36.3	0.18	0.333	0.0017
Ruthenium-106	100	ND (5.00)	0.050	1.43	0.014
Antimony-125	800	83.0	0.10	0.226	0.00028
Strontium-90	30	64,600	2,155	0.0357	0.0012
Iodine-129	9	29.9	3.3	1.16	0.13
Carbon-14	2,000	15.3	0.0076	17.6	0.0088
Tritium	60,000	851,000	14.2	822,000	13.7

	Prior to secondary treatment (additional ALPS inlet) <sup>※1</sup>	After secondary treatment (Sample tank) <sup>※2</sup>
Primary 7 nuclides	2,165	0.15
Sum of the ratio of legally required concentrations for the nuclides targeted for removal (60 nuclides) + carbon-14 excluding nickel-63 and cadmium-113m	2,406	0.35

※1 Specimens sampled on September 19, 20 and 21 were mixed/agitated analyzed

※2 Specimens sampled on September 27 were analyzed

※3 "ND" indicates that results were below detectable limits and the detectable limits are noted in parentheses

※4 Detectable limits are used for calculation for nuclides for which the analysis results were below detectable limits

## 【Reference】 Secondary treatment performance confirmation test result details (J1-C group)

	Nuclide (half-life)	Concentrations required by law [Bq/l]	Prior to secondary treatment		After secondary treatment		Notes
			Analysis results [Bq/l]	Ratio of legally required concentrations ※1	Analysis results [Bq/l]	Ratio of legally required concentrations ※1	
1	Rubidium-86 (Approx. 19 days)	300	ND (4.11)	0.014	ND (0.497)	0.0017	
2	Strontium-89 (Approx. 51 days)	300	ND (6,720)	22	ND (0.0537)	0.00018	
3	Strontium-90 (Approx. 29 years)	30	64,600	2,200	0.0357	0.0012	
4	Yttrium-90 (Approx. 64 hours)	300	64,600	220	0.0357	0.00012	In radioactive equilibrium with Strontium-90
5	Yttrium-91 (Approx. 59 days)	300	ND (84.5)	0.28	ND (16.5)	0.055	
6	Niobium-95 (Approx. 35 days)	1,000	ND (0.350)	0.00035	ND (0.0496)	0.000050	
7	Technetium-99 (Approx. 210,000 years)	1,000	17.4	0.017	ND (1.23)	0.0012	
8	Ruthenium-103 (Approx. 40 days)	1,000	ND (0.721)	0.00072	ND (0.0527)	0.000053	
9	Ruthenium-106 (Approx. 370 days)	100	ND (5.00)	0.050	1.43	0.014	
10	Rhodium-103m (Approx. 56 minutes)	200,000	ND (0.721)	0.0000036	ND (0.0527)	0.00000026	In radioactive equilibrium with Ruthenium-103
11	Rhodium-106 (Approx. 30 seconds)	300,000	ND (5.00)	0.000017	1.43	0.0000048	In radioactive equilibrium with Ruthenium-106
12	Silver-110m (Approx. 250 days)	300	ND (0.541)	0.0018	ND (0.0426)	0.00014	
13	Cadmium-113m (Approx. 15 years)	40	Under analysis				

## 【Reference】 Secondary treatment performance confirmation test result details (J1-C group)

	Nuclide (half-life)	Concentrations required by law [Bq/l]	Prior to secondary treatment		After secondary treatment		Notes
			Analysis results [Bq/l]	Ratio of legally required concentrations ※1	Analysis results [Bq/l]	Ratio of legally required concentrations ※1	
14	Cadmium-115m (Approx. 45 days)	300	ND (22.6)	0.075	ND (2.70)	0.0090	
15	Tin-119m (Approx. 290 days)	2,000	ND (390)	0.19	ND (42.4)	0.021	Assessed using the radiation concentration of Tin-123
16	Tin-123 (Approx. 130 days)	400	ND (60.6)	0.15	ND (6.59)	0.016	
17	Tin-126 (Approx. 100,000 years)	200	ND (2.88)	0.014	ND (0.292)	0.0015	
18	Antimony-124 (Approx. 60 days)	300	ND (0.279)	0.00093	ND (0.0967)	0.00032	
19	Antimony-125 (Approx. 3 years)	800	83.0	0.10	0.226	0.00028	
20	Tellurium-123m (Approx. 120 days)	600	ND (0.832)	0.0014	ND (0.0919)	0.00015	
21	Tellurium-125m (Approx. 58 days)	900	83.0	0.092	0.226	0.00025	In radioactive equilibrium with Antimony-125
22	Tellurium-127 (Approx. 9 hours)	5,000	ND (72.5)	0.015	ND (4.69)	0.00094	
23	Tellurium-127m (Approx. 110 days)	300	ND (75.3)	0.25	ND (4.87)	0.016	Assessed using the radiation concentration of Tellurium-127
24	Tellurium-129 (Approx. 70 minutes)	10,000	ND (12.7)	0.0013	ND (0.615)	0.000061	
25	Tellurium-129m (Approx. 34 days)	300	ND (13.1)	0.044	ND (1.37)	0.0046	
26	Iodine-129 (Approx. 16,000,000 years)	9	29.9	3.3	1.16	0.13	

※1 To 2 significant figures

## 【Reference】 Secondary treatment performance confirmation test result details (J1-C group)

	Nuclide (half-life)	Concentrations required by law [Bq/l]	Prior to secondary treatment		After secondary treatment		Notes
			Analysis results [Bq/l]	Ratio of legally required concentrations※1	Analysis results [Bq/l]	Ratio of legally required concentrations※1	
27	Cesium-134 (Approx. 2 years)	60	29.3	0.49	ND (0.0760)	0.0013	
28	Cesium-135 (Approx. 3,000,000 years)	600	0.00381	0.0000064	0.00000118	0.000000020	Assessed using the radiation concentration of Cesium-137
29	Cesium-136 (Approx. 13 days)	300	ND (0.377)	0.0013	ND (0.0468)	0.00016	
30	Cesium-137 (Approx. 30 years)	90	599	6.7	0.185	0.0021	
31	Barium-137m (Approx. 3 minutes)	800,000	599	0.00075	0.185	0.0000023	In radioactive equilibrium with Cesium-137
32	Barium-140 (Approx. 13 days)	300	ND (2.40)	0.0080	ND (0.202)	0.00067	
33	Cerium-141 (Approx. 32 days)	1,000	ND (1.51)	0.0015	ND (0.262)	0.00026	
34	Cerium-144 (Approx. 280 days)	200	ND (6.84)	0.034	ND (0.569)	0.0028	
35	Praseodymium-144 (Approx. 17 minutes)	20,000	ND (6.84)	0.00034	ND (0.569)	0.000028	In radioactive equilibrium with Cerium-144
36	Praseodymium-144m (Approx. 7 minutes)	40,000	ND (6.84)	0.00017	ND (0.569)	0.000014	In radioactive equilibrium with Cerium-144
37	Promethium-146 (Approx. 6 years)	900	ND (1.23)	0.0014	ND (0.0666)	0.000074	
38	Promethium-147 (Approx. 3 years)	3,000	ND (4.08)	0.0014	ND (0.804)	0.00027	Assessed using the radiation concentration of Europium-154
39	Promethium-148 (Approx. 5 days)	300	ND (0.649)	0.0022	ND (0.233)	0.00078	



## 【Reference】 Secondary treatment performance confirmation test result details (J1-C group)

	Nuclide (half-life)	Concentrations required by law [Bq/l]	Prior to secondary treatment		After secondary treatment		Notes
			Analysis results [Bq/l]	Ratio of legally required concentrations※1	Analysis results [Bq/l]	Ratio of legally required concentrations※1	
40	Promethium-148m (Approx. 41 days)	500	ND (0.634)	0.0013	ND (0.0484)	0.000097	
41	Samarium-151 (Approx. 87 years)	8,000	ND (0.0577)	0.0000072	ND (0.0114)	0.0000014	Assessed using the radiation concentration of Europium-154
42	Europium-152 (Approx. 13 years)	600	ND (2.70)	0.0045	ND (0.284)	0.00047	
43	Europium-154 (Approx. 9 years)	400	ND (0.577)	0.0014	ND (0.114)	0.00028	
44	Europium-155 (Approx. 5 years)	3,000	ND (3.43)	0.0011	ND (0.336)	0.00011	
45	Gadolinium-153 (Approx. 240 days)	3,000	ND (3.17)	0.0011	ND (0.264)	0.000088	
46	Terbium-160 (Approx. 72 days)	500	ND (1.66)	0.0033	ND (0.143)	0.00029	
47	Plutonium-238 (Approx. 88 years)	4	0.570	0.14	ND (0.0325)	0.0081	Assessed as part of Gross-α radiation measurements
48	Plutonium-239 (Approx. 24,000 years)	4	0.570	0.14	ND (0.0325)	0.0081	Assessed as part of Gross-α radiation measurements
49	Plutonium-240 (Approx. 6,600 years)	4	0.570	0.14	ND (0.0325)	0.0081	Assessed as part of Gross-α radiation measurements
50	Plutonium-241 (Approx. 14 years)	200	20.7	0.10	ND (1.18)	0.0059	Assessed using the radiation concentration of Plutonium-238
51	Americium-241 (Approx. 430 years)	5	0.570	0.11	ND (0.0325)	0.0065	Assessed as part of Gross-α radiation measurements
52	Americium-242m (Approx. 150 years)	5	0.0103	0.0021	ND (0.000587)	0.00012	Assessed using the radiation concentration of Americium-241

## 【Reference】 Secondary treatment performance confirmation test result details (J1-C group)

	Nuclide (half-life)	Concentrations required by law [Bq/l]	Prior to secondary treatment		After secondary treatment		Notes
			Analysis results [Bq/l]	Ratio of legally required concentrations ※1	Analysis results [Bq/l]	Ratio of legally required concentrations ※1	
53	Americium-243 (Approx. 7,400 years)	5	0.570	0.11	ND (0.0325)	0.0065	Assessed as part of Gross-α radiation measurements
54	Curium-242 (Approx. 160 days)	60	0.570	0.0095	ND (0.0325)	0.00054	Assessed as part of Gross-α radiation measurements
55	Curium-243 (Approx. 29 years)	6	0.570	0.095	ND (0.0325)	0.0054	Assessed as part of Gross-α radiation measurements
56	Curium-244 (Approx. 18 years)	7	0.570	0.081	ND (0.0325)	0.0046	Assessed as part of Gross-α radiation measurements
57	Manganese-54 (Approx. 310 days)	1,000	ND (0.362)	0.00036	ND (0.0383)	0.000038	
58	Iron-59 (Approx. 45 days)	400	ND (0.641)	0.0016	ND (0.0866)	0.00022	
59	Cobalt-58 (Approx. 71 days)	1,000	ND (0.344)	0.00034	ND (0.0411)	0.000041	
60	Cobalt-60 (Approx. 5 years)	200	36.3	0.18	0.333	0.0017	
61	Nickel-63 (Approx. 100 years)	6,000	Under analysis				
62	Zinc-65 (Approx. 240 days)	200	ND (0.719)	0.0036	ND (0.0941)	0.00047	
63	Carbon-14 (Approx. 5,700 years)	2,000	15.3	0.0076	17.6	0.0088	
Total: (Excluding Nickel-63/Cadmium-113m)			-	2,400	-	0.35	

※1 To 2 significant figures

【Reference】 Secondary treatment performance confirmation test result details (J1-C group)

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Nuclide (half-life)	Concentrations required by law [Bq/l]	Prior to secondary treatment		After secondary treatment		Notes
		Analysis results [Bq/l]	Ratio of legally required concentrations ※1	Analysis results [Bq/l]	Ratio of legally required concentrations ※1	
Gross-α	-	0.570	-	ND (0.0325)	-	
Tritium (Approx. 12 years)	60,000	851,000	14	822,000	14	

※1 To 2 significant figures