

“High Alarm” from Plastic Scintillation Fiber monitor (PSF monitor) monitoring the wharf drainage channel at the Fukushima Daiichi Nuclear Power Station (Continued report)

【Overview】

- We continue to investigate the cause of the “High Alarm” from the fiber-optic radiation monitor (hereinafter referred to as, "PSF monitor") monitoring the wharf drainage channel that occurred on March 2, 2021. Analysis of the rain water flowing into the drainage ditch (sampled on March 21) near temporary storage area W2, which is upstream from the aforementioned drainage channel, found concentrations of cesium-134 to be below detectable limits (detectable limits: 3.5~3.6Bq/L), and concentrations of cesium-137 to be between 6.1~9.4Bq/liter. This analysis, which was conducted on March 22, also found gross beta values to be high at between $1.6 \times 10^3 \sim 1.7 \times 10^3$ Bq/liter.
- In order to investigate the cause of the high gross beta values from the aforementioned drainage ditch rainwater, dose rates at the surface of the ground in temporary storage area W2 (soil and asphalt, etc.) were measured and it was found on March 24 that there are spots where beta ray values are high (maximum: 13mSv/hour), and that there are clumps of a gel-like substance emitting high beta rays (maximum: 13mSv).
- Therefore, on March 24, the aforementioned gel-like clumps were collected along with soil from the spots in temporary storage area W2 where beta ray doses are high after which a decontaminating agent (coating stripper decontamination agent) was scattered on the surface of the surrounding area, and the area was covered with tarps and sandbags. As an additional measure the surface of areas surrounding the aforementioned high-dose points will be stripped as soon as preparations are made.

<Already announced>
- After decontaminating agents were applied, and the ground was covered with tarps and sandbags on March 24, it rained on March 28-29th, so the rainwater flowing into the drainage ditch near temporary storage area W2, which is upstream from the aforementioned drainage channel, was analyzed once again (sample taken on March 29). The results (④ on slide 2) showed concentrations of cesium-134 to be below detectable limits (detectable limits: 4.3~4.9Bq/L), concentrations of cesium-137 to be between 21~43Bq/liter and gross beta values to be between $3.1 \times 10^2 \sim 1.1 \times 10^3$ Bq/liter. It was confirmed on March 30 by comparison of the radioactivity concentrations and rainwater sampled on March 21, that gross beta values and beta/gamma ratios are decreasing.
- However, since gross beta values in rainwater flowing into the aforementioned drainage ditch remain high, we shall strip all of the asphalt covering temporary storage area W2 and repave it starting on April 2 in consideration of the possibility that radioactive substances may be dispersed over the entire surface of temporary storage area W2.
- Tarps will be used as necessary when stripping asphalt to prevent radioactive substances from flowing into drainage ditches in the vicinity.
- We will continue to monitor radioactivity concentrations in the aforementioned drainage channel, including when asphalt is being stripped, and investigate the cause of the alarm.

【Reference】 Drainage ditch rainwater analysis results (Sampled on March 29)

- ✓ Gross beta values for drainage water from temporary storage area W2 at point ④ was 1,100Bq/liter
- ✓ β/γ radioactivity concentration ratio: Approx. 26 times greater

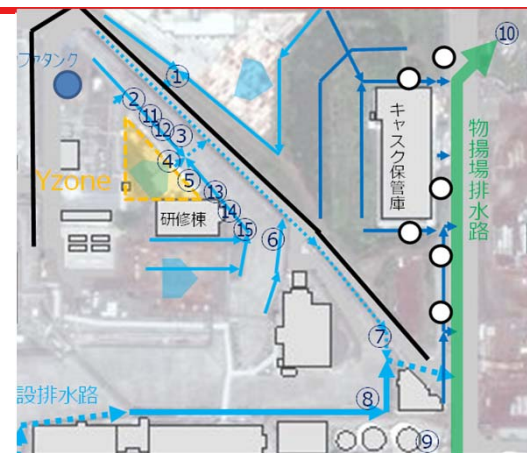


Units: Bq/L

Ground point	Sampling location	Sampling location conditions	1 st			2 nd			3 rd			Sampling
			Sampling time	Cs-137	Gross β	Sampling time	Cs-137	Gross β	Sampling time	Cs-137	Gross β	
①-1	Drainage ditch	Mountain side drainage ditch	1:45	6.0E+00	<5.2E+00	3:15	5.2E+01	7.4E+01	4:00	1.4E+01	1.7E+02	Manual sampling
①-2	Drainage ditch	Mountain side drainage ditch	1:45	<4.7E+00	2.1E+01	3:15	<5.3E+00	4.0E+01	4:00	6.3E+00	2.7E+01	Manual sampling
①-3	Slope	Groundwater near area Y, prior to drainage ditch merging	Samples could not be taken			Samples could not be taken			Samples could not be taken			Manual sampling
④	Drainage ditch	Drainage water from near area Y, prior to merging at points ③, ⑤	2:10	4.3E+01	1.1E+03	3:00	3.1E+01	7.3E+02	4:10	2.1E+01	3.1E+02	Manual sampling
⑤	Drainage ditch	Drainage water from bus parking lot, prior to merging at points ③, ④	2:10	6.6E+00	1.0E+01	3:00	5.6E+00	2.5E+01	4:10	6.6E+01	8.2E+00	Manual sampling
⑯	Drainage box	Drainage water from ④, Upper stream of ⑦	2:00	1.7E+01	2.7E+02	3:00	2.5E+01	1.6E+01	4:00	1.1E+01	1.3E+02	Automatic sampler
⑦	Drainage ditch	Drainage water from ①-⑥, prior to merge at point ⑧	2:00	1.2E+01	1.6E+02	3:00	1.9E+00	5.8E+00	4:00	6.5E+01	6.5E+01	Automatic sampler
⑩	Unloading wharf drainage channel	Regular measuring points	Samples could not be taken			Samples could not be taken			Samples could not be taken			Automatic sampler

【Reference】 Drainage ditch rainwater analysis results (Sampled on March 21)

- ✓ Gross beta values for drainage water from temporary storage area W2 at point ④ was 1,700Bq/liter
- ✓ β/γ radioactivity concentration ratio: Approx. 300 times greater
- ✓ Surface surveys conducted on temporary storage area W2, which is the source of drainage water



No water at points ⑪, ⑬~⑮
Units: Bq/L

Sampling date: March 21, 2021

Ground point	Sampling location	Sampling location conditions	1 st			2 nd			3 rd			Sampling
			Sampling time	Cs-137	Gross β	Sampling time	Cs-137	Gross β	Sampling time	Cs-137	Gross β	
①	Drainage ditch	Near temporary storage area	16:00	8.4E+00	5.0E+01	17:30	<4.4E+00	6.0E+01	18:30	1.0E+01	4.8E+01	Manual sampling
②	Drainage ditch	After merging with buffer tank area drainage ditch, prior to merging at point ⑫	16:25	4.1E+01	5.4E+01	17:15	8.7E+01	1.4E+02	No water			Manual sampling
⑫	Groundwater drainage pipe	Groundwater near area Y, prior to drainage ditch merging	16:35	6.8E+01	6.8E+01	17:10	6.5E+01	7.7E+01	18:55	6.5E+01	7.1E+01	Manual sampling
③	Drainage ditch	After merge at point ⑫, prior to merging at points ④, ⑤	16:36	5.3E+01	1.0E+02	17:05	2.7E+01	5.7E+01	19:00	1.5E+02	1.6E+02	Manual sampling
④	Drainage ditch	Drainage water from near area Y, prior to merging at points ③, ⑤	16:36	6.1E+00	1.6E+03	17:05	9.4E+00	1.7E+03	No water			Manual sampling
⑤	Drainage ditch	Drainage water from bus parking lot, prior to merging at points ③, ④	16:33	1.5E+01	2.3E+01	17:05	8.0E+00	2.5E+01	19:05	1.6E+01	2.6E+01	Manual sampling
⑥	Drainage ditch	Drainage water from bus parking lot and foot of slope	16:42	3.8E+01	4.4E+01	17:20	2.7E+01	4.0E+01	18:40	6.3E+01	7.2E+01	Manual sampling
⑦	Drainage ditch	Drainage water from ①~⑥, prior to merge at point ⑧	16:17	<4.4E+00	9.1E+00	17:32	<4.3E+00	7.7E+00	18:47	1.2E+01	2.1E+02	Automatic sampler
⑧	Newly constructed drainage channel	Drainage water from Oguma Road, etc.	16:23	4.6E+00	1.5E+01	17:38	5.6E+00	<7.072E0	18:53	<4.2E+00	<7.1E+00	Automatic sampler
⑨	Inside the drainage channel shaft	Unloading wharf drainage channel (upstream of radioactivity removal sandbags)	16:46	8.7E+00	1.3E+01	Samples could not be taken			Samples could not be taken			Automatic sampler
⑩	Unloading wharf drainage channel	Regular measuring points	16:15	7.3E+00	3.1E+01	17:30	6.5E+00	3.1E+01	18:43	<5.7E+00	2.2E+01	Automatic sampler