

○Results of Radioactive Material Monitoring of Aquatic Organisms (Location E along the Niida River)

< Location E along the Niida River: Samples collected >

| Items<br>Locations | General items |          | Radioactive materials |            |               |               |
|--------------------|---------------|----------|-----------------------|------------|---------------|---------------|
|                    | Water         | Sediment | Water (Cs)            | Water (Sr) | Sediment (Cs) | Sediment (Sr) |
| E-1                | ○             | ○        | ○                     | ○          | ○             | ○             |
| E-2a               | ○             | ○        | ○                     | —          | —             | —             |
| E-2b               | ○             | —        | ○                     | —          | —             | —             |
| E-3                | ○             | ○        | ○                     | —          | —             | —             |
| E-4                | ○             | ○        | ○                     | —          | —             | —             |
| E-5                | ○             | ○        | ○                     | —          | ○             | —             |

< Location E along the Niida River: Site measurement item >

| Items<br>Locations | Latitude and longitude of the location |           | Survey date and time |              | Water           | Sediment          |                      |          |         | Other        |                 |                   |
|--------------------|--|-----------|----------------------|--------------|-----------------|-------------------|----------------------|----------|---------|--------------|-----------------|-------------------|
|                    | Latitude                               | Longitude | Date                 | Time (water) | Time (sediment) | Water temperature | Sediment temperature | Property | Color   | Contaminants | Water depth (m) | Transparency (cm) |
| E-1                | 37.6615°                               | 140.9114° | 2014/12/2            | 10:28        | 10:21           | 8.7               | 8.0                  | Sand     | 2.5Y4/4 | None         | 0.37            | >50.0             |
| E-2a               | 37.6643°                               | 140.9454° |                      | 8:37         | 9:15            | 8.6               | 8.6                  | Sediment | 2.5Y4/3 | Roots        | 0.32            | >50.0             |
| E-2b               | 37.6640°                               | 140.9458° |                      | 8:04         | —               | 8.7               | —                    | —        | —       | —            | 0.39            | >50.0             |
| E-3                | 37.6447°                               | 141.0018° |                      | 14:16        | 14:10           | 9.9               | 9.4                  | Sand     | 2.5Y4/6 | None         | 0.44            | >50.0             |
| E-4                | 37.6463°                               | 140.9658° |                      | 13:24        | 13:18           | 9.7               | 9.8                  | Sand     | 2.5Y4/2 | None         | 0.47            | >50.0             |
| E-5                | 37.6652°                               | 140.9174° |                      | 11:34        | 11:27           | 8.9               | 8.9                  | Sand     | 2.5Y4/4 | None         | 0.47            | >50.0             |

< Location E along the Niida River: General survey items/Analysis of radioactive materials Water >

| Items<br>Locations | Latitude and longitude of the location |           | Survey date and time |       | pH  | BOD    | COD    | DO     | Electrical conductivity | Salinity | TOC    | SS     | Turbidity | Cs-134 | Cs-137 | Sr-90  |
|--------------------|--|-----------|----------------------|-------|-----|--------|--------|--------|-------------------------|----------|--------|--------|-----------|--------|--------|--------|
|                    | Latitude                               | Longitude | Date                 | Time  |     | (mg/L) | (mg/L) | (mg/L) | (mS/m)                  |          | (mg/L) | (mg/L) | (FNU)     | (Bq/L) | (Bq/L) | (Bq/L) |
| E-1                | 37.6615°                               | 140.9114° | 2014/12/2            | 10:28 | 7.7 | <0.5   | 3.4    | 11.9   | 7.5                     | 0.05     | 1.6    | 5      | 3.6       | 0.056  | 0.17   | 0.0025 |
| E-2a               | 37.6643°                               | 140.9454° |                      | 8:37  | 7.5 | <0.5   | 4.6    | 11.6   | 7.2                     | 0.04     | 1.5    | 5      | 4.1       | 0.088  | 0.27   | —      |
| E-2b               | 37.6640°                               | 140.9458° |                      | 8:04  | 7.5 | <0.5   | 3.7    | 12.0   | 9.1                     | 0.05     | 1.5    | 6      | 4.2       | 0.060  | 0.17   | —      |
| E-3                | 37.6447°                               | 141.0018° |                      | 14:16 | 7.5 | 0.7    | 3.4    | 11.5   | 9.0                     | 0.05     | 1.4    | 5      | 3.4       | 0.050  | 0.15   | —      |
| E-4                | 37.6463°                               | 140.9658° |                      | 13:24 | 7.6 | <0.5   | 3.4    | 12.2   | 7.8                     | 0.05     | 1.5    | 6      | 3.7       | 0.054  | 0.16   | —      |
| E-5                | 37.6652°                               | 140.9174° |                      | 11:34 | 7.6 | <0.5   | 3.7    | 12.2   | 7.8                     | 0.05     | 1.5    | 6      | 3.3       | 0.053  | 0.16   | —      |

< Location E along the Niida River: General survey items/Analysis of radioactive materials Sediment >

| Items<br>Locations | Latitude and longitude of the location |           | Survey date and time |       | pH  | Redox potential<br>E <sub>NHLE</sub><br>(mV) | Water content<br>(%) | IL<br>(%) | TOC<br>(mg/g-dry) | Soil particle density<br>(g/cm <sup>3</sup> ) | Grain size distribution   |                                  |                                     |                                    |                                |                                    | Cs-134<br>(Bq/kg-dry) | Cs-137<br>(Bq/kg-dry) | Sr-90<br>(Bq/kg-dry) |                               |                                |   |
|--------------------|--|-----------|----------------------|-------|-----|--|----------------------|-----------|-------------------|---|---------------------------|----------------------------------|-------------------------------------|------------------------------------|--------------------------------|------------------------------------|-----------------------|-----------------------|----------------------|-------------------------------|--------------------------------|---|
|                    | Latitude                               | Longitude | Date                 | Time  |     |  |                      |           |                   |   | Gravel<br>(2-75mm)<br>(%) | Coarse sand<br>(0.85-2mm)<br>(%) | Medium sand<br>(0.25-0.85mm)<br>(%) | Fine sand<br>(0.075-0.25mm)<br>(%) | Silt<br>(0.005-0.075mm)<br>(%) | Clay<br>(Less than 0.005mm)<br>(%) |                       |                       |                      | Median grain diameter<br>(mm) | Maximum grain diameter<br>(mm) |   |
| E-1                | 37.6615°                               | 140.9114° | 2014/12/2            | 10:21 | 7.2 | 224  | 16.2                 | 0.9       | 1.2               | 2.672   | 28.8                      | 44.8                             | 22.8                                | 2.1                                | 1.0                            | 0.5                                | 1.4                   | 9.5                   | 270                  | 890                           | 0.21                           |   |
| E-2a               | 37.6643°                               | 140.9454° |                      | 9:15  | 7.0 | 200  | 47.7                 | 9.6       | 24.3              | 2.628   | 22.0                      | 15.9                             | 18.8                                | 15.5                               | 12.4                           | 15.4                               | 0.36                  | 19                    | 1,300                | 4,200                         | —                              |   |
| E-3                | 37.6447°                               | 141.0018° |                      | 14:10 | 7.1 | 335  | 19.4                 | 1.0       | 1.4               | 2.673   | 6.8                       | 33.5                             | 24.3                                | 64.7                               | 2.5                            | 1.1                                | 0.6                   | 0.66                  | 9.5                  | 100                           | 320                            | — |
| E-4                | 37.6463°                               | 140.9658° |                      | 13:18 | 6.9 | 388  | 20.8                 | 1.0       | 1.4               | 2.679   | 1.9                       | 22.3                             | 68.3                                | 5.0                                | 1.5                            | 1.0                                | 0.61                  | 0.61                  | 9.5                  | 130                           | 410                            | — |
| E-5                | 37.6652°                               | 140.9174° |                      | 11:27 | 7.0 | 382  | 18.7                 | 1.6       | 1.6               | 2.692   | 20.1                      | 30.4                             | 41.7                                | 5.0                                | 1.1                            | 1.7                                | 0.86                  | 0.86                  | 9.5                  | 330                           | 1,100                          | — |

Note) N.D. means to be below the detection limit and figures in parentheses show the detection limit.

< Location E along the Niida River: Analysis items Aquatic organisms >

| Location     |   | Latitude and longitude of the |                        | Sampling Date | Division                                   | Class        | Order         | Family         | Species name                        | English name                         | Population          | Sample weight (kg-wet) | Note                             |                  |                  | Cs-134 (Bq/kg-wet) | Cs-137 (Bq/kg-wet) | Sr-90 (Bq/kg-wet) |
|--------------|---|-------------------------------|------------------------|---------------|--|--------------|---------------|----------------|-------------------------------------|--------------------------------------|---------------------|------------------------|----------------------------------|------------------|------------------|--------------------|--------------------|-------------------|
|              |   | Latitude                      | Longitude              |               |  |              |               |                |                                     |                                      |                     |                        | Growth stage                     | Stomach contents | Measurement site |                    |                    |                   |
| E-2a<br>E-2b | — | 37.6643°<br>37.6640°          | 140.9454°<br>140.9458° | 2014/12/5     | Arthropoda                                 | Insecta      | Ephemeroptera | Heptageniidae  | —                                   | River bottom materials (incl. algae) | Considerable number | 0.060                  | —                                | —                | —                | 290                | 940                | —                 |
|              |   |                               |                        |               | Arthropod                                  | Insecta      | Ephemeroptera | Heptageniidae  | <u>Epeorus curvatulus</u>           | Epeorus curvatulus                   | 1,104               | 0.012                  | Larva                            | —                | —                | 62                 | 170                | —                 |
|              |   |                               |                        |               | Arthropod                                  | Insecta      | Ephemeroptera | Heptageniidae  | <u>Epeorus ikanonis</u>             | Epeorus ikanonis                     |                     |                        |                                  |                  |                  |                    |                    |                   |
|              |   |                               |                        |               | Arthropod                                  | Insecta      | Ephemeroptera | Schistonota    | <u>Rhithrogena sp.</u>              | Rhithrogena japonica                 |                     |                        |                                  |                  |                  |                    |                    |                   |
|              |   |                               |                        |               | Arthropoda                                 | Insecta      | Plecoptera    | Plecoptera     | Heptageniidae                       | Heptageniidae                        | 630                 | 0.033                  | Larva                            | —                | —                | 13                 | 49                 | —                 |
|              |   |                               |                        |               | Arthropod                                  | Insecta      | Trichoptera   | Stenopsychidae | <u>Kamimuria tibialis</u>           | Kamimuria tibialis                   |                     |                        |                                  |                  |                  |                    |                    |                   |
|              |   |                               |                        |               | Arthropod                                  | Insecta      | Odonata       | Corduliidae    | <u>Stenopsyche marmorata</u>        | Stenopsyche marmorata                | 164                 | 0.024                  | Larva                            | —                | —                | 200                | 700                | —                 |
|              |   |                               |                        |               | Arthropod                                  | Insecta      | Odonata       | Gomphidae      | <u>Macromia amphigena amphigena</u> | Macromia amphigena                   | 46                  | 0.011                  | Larva (dragonfly larva)          | —                | —                | 36                 | 120                | —                 |
|              |   |                               |                        |               | Arthropod                                  | Insecta      | Odonata       | Gomphidae      | <u>Onychogomphus viridicostus</u>   | Onychogomphus viridicostus           |                     |                        |                                  |                  |                  |                    |                    |                   |
|              |   |                               |                        |               | Arthropod                                  | Insecta      | Odonata       | Gomphidae      | <u>Davidius nanus</u>               | Davidius nanus                       |                     |                        |                                  |                  |                  |                    |                    |                   |
|              |   |                               |                        |               | Arthropod                                  | Insecta      | Odonata       | Gomphidae      | <u>Davidius sp.</u>                 | Davidius                             |                     |                        |                                  |                  |                  |                    |                    |                   |
|              |   |                               |                        |               | Arthropod                                  | Insecta      | Odonata       | Gomphidae      | <u>Anisogomphus maacki</u>          | Anisogomphus maacki                  |                     |                        |                                  |                  |                  |                    |                    |                   |
|              |   |                               |                        |               | Arthropod                                  | Insecta      | Odonata       | Aeshnidae      | <u>Asiagomphus melaenops</u>        | Asiagomphus melaenops                |                     |                        |                                  |                  |                  |                    |                    |                   |
|              |   |                               |                        |               | Arthropod                                  | Malacostraca | Decapoda      | Procambarus    | <u>Boyeria maclachlani</u>          | Boyeria maclachlani                  | 29                  | 0.094                  | imago                            | —                | —                | 40                 | 120                | —                 |
|              |   |                               |                        |               | Arthropoda                                 | Malacostraca | Decapoda      | Atyidae        | <u>Procambarus clarkii</u>          | Red swamp crawfish                   | 96                  | 0.015                  | imago                            | —                | —                | 41                 | 130                | —                 |
|              |   |                               |                        |               | Arthropod                                  | Malacostraca | Decapoda      | Grapsidae      | <u>Paratya improvisa</u>            | Freshwater shrimp                    | 4                   | 0.090                  | imago                            | —                | —                | 36                 | 120                | —                 |
|              |   |                               |                        |               | Vertebrata                                 | Osteichthyes | Cypriniformes | Cyprinidae     | <u>Eriocheir japonica</u>           | Japanese mitten crab                 | 16                  | 0.036                  | immature fish (under 1-year old) | —                | —                | 29                 | 95                 | —                 |
|              |   |                               |                        |               | Vertebrata                                 | Osteichthyes | Cypriniformes | Cyprinidae     | <u>Tribolodon hakonensis</u>        | Japanese dace                        | 6                   | 0.018                  | immature fish/mature fish        | —                | —                | 31                 | 110                | —                 |
|              |   |                               |                        |               | coarse particulate organic matters (CPOMs) | —            | —             | —              | <u>Rhinogobius sp.</u>              | R. sp. CB                            | 3                   | 0.010                  | Mature fish                      | —                | —                | 76                 | 210                | —                 |
|              |   |                               |                        |               | coarse particulate organic matters (CPOMs) | —            | —             | —              | —                                   | fallen leaves                        | Considerable number | 0.25                   | —                                | —                | —                | 130                | 390                | —                 |

\*1: Organisms were collected in or around the targeted water areas.

\*2: When multiple types of aquatic organisms were collected, a sample was prepared by mixing them.

\*3: For a sample made of multiple types of aquatic organisms, the name of the dominant one largest in number is underlined.

\*4: Basically, measurement was conducted for all organism samples. Viscera (stomach and bowels) were removed for the measurement when possible so that undigested food and sediments, etc. in the digestive system would be excluded.

\*5: A statement in red in the "Growth stage" column shows the age assessed based on squama or otolith

\*6: Plankton (suspended algae) is the residue remaining after the filtration of lake water or seawater with a plankton net (40µm-mesh).

\*7: River bottom materials (incl. algae) are algae, etc. that were scratched off stones with a brush, etc. and may include very fine particles such as inorganic silt and clay.

\*8: N.D. means to be below the detection limit and figures in parentheses show the detection limit.

\*9: Activity concentrations include counting errors, but the details are omitted here.