

**Results of Radioactive Material Monitoring of Aquatic Organisms (Locations A and B along the Abukuma River)**

< Locations A and B along the Abukuma River: Samples collected >

| Items<br>Locations | General items |          | Radioactive materials |            |               |               |
|--------------------|---------------|----------|-----------------------|------------|---------------|---------------|
|                    | Water         | Sediment | Water (Cs)            | Water (Sr) | Sediment (Cs) | Sediment (Sr) |
| A-1                | ○             | ○        | ○                     | ○          | ○             | ○             |
| A-2                | ○             | ○        | ○                     | ○          | ○             | ○             |
| B-1                | ○             | ○        | ○                     | ○          | ○             | ○             |
| B-2                | ○             | ○        | ○                     | ○          | ○             | ○             |
| B-3                | ○             | ○        | ○                     | ○          | ○             | ○             |

< Locations A and B along the Abukuma 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 (degrees C) | Sediment temperature (degrees C) | Property      | Color   | Odor        | Contaminants | Water depth (m) | Transparency (cm) |
| A-1 (Surface layer) | 37.620583°                             | 140.521950° | 2013/10/8            | 9:27         | 9:41            | 20.8                          | 20.9                             | Sand/sediment | 2.5Y4/3 | Faint earth | Plant        | 6.4             | >50               |
| A-1 (Deep layer)    | 37.620583°                             | 140.521950° |                      | 9:20         |                 | 20.9                          |                                  |               |         |             |              |                 | (2.2m)*           |
| A-2                 | 37.565700°                             | 140.394250° |                      | 11:23        | 11:29           | 20.2                          | 20.8                             | Sand/sediment | 10YR4/6 | None        | Plant        | 0.43            | >50               |
| B-1                 | 37.784217°                             | 140.492017° |                      | 14:48        | 14:56           | 22.1                          | 21.9                             | Sand/sediment | 2.5Y4/2 | Faint earth | Plant        | 0.09            | >50               |
| B-2                 | 37.811983°                             | 140.505817° |                      | 13:58        | 14:03           | 21.1                          | 20.5                             | Fine sand     | 2.5Y5/2 | None        | None         | 0.39            | >50               |
| B-3                 | 37.816400°                             | 140.471933° |                      | 13:04        | 13:14           | 18.8                          | 19.3                             | Sand          | 2.5Y4/4 | None        | None         | 0.60            | >50               |

\* The numbers in ( ) indicates the degree of transparency

< Locations A and B along the Abukuma River: General survey items/Analysis of radioactive materials Water >

| Items<br>Locations  | Latitude and longitude of the location |             | Survey date and time |       | pH  | BOD (mg/L) | COD (mg/L) | DO (mg/L) | Electrical conductivity (mS/m) | Salinity | TOC (mg/L) | SS (mg/L) | Turbidity (FNU) | Cs-134 (Bq/L) | Cs-137 (Bq/L) | Sr-90 (Bq/L) |
|---------------------|--|-------------|----------------------|-------|-----|------------|------------|-----------|--------------------------------|----------|------------|-----------|-----------------|---------------|---------------|--------------|
|                     | Latitude                               | Longitude   | Date                 | Time  |     |            |            |           |                                |          |            |           |                 |               |               |              |
| A-1 (Surface layer) | 37.620583°                             | 140.521950° | 2013/10/8            | 9:27  | 7.8 | 1.1        | 3.5        | 9.4       | 19.0                           | 0.09     | 1.6        | 3         | 2.4             | 0.011         | 0.027         | 0.0012       |
| A-1 (Deep layer)    | 37.620583°                             | 140.521950° |                      | 9:20  | 7.7 | 1.3        | 3.5        | 9.5       | 22.1                           | 0.09     | 1.7        | 3         | 2.3             | 0.0081        | 0.018         | —            |
| A-2                 | 37.565700°                             | 140.394250° |                      | 11:23 | 7.9 | -0.5       | 2.3        | 10.0      | 11.7                           | 0.06     | 1.1        | 2         | 1.7             | 0.016         | 0.036         | —            |
| B-1                 | 37.784217°                             | 140.492017° |                      | 14:48 | 8.3 | 0.6        | 3.2        | 11.5      | 19.0                           | 0.10     | 1.7        | 3         | 2.4             | 0.012         | 0.024         | —            |
| B-2                 | 37.811983°                             | 140.505817° |                      | 13:58 | 8.1 | 1.0        | 3.1        | 11.0      | 16.8                           | 0.09     | 1.6        | 2         | 2.2             | 0.018         | 0.037         | —            |
| B-3                 | 37.816400°                             | 140.471933° |                      | 13:04 | 7.7 | 0.6        | 3.1        | 10.4      | 8.8                            | 0.05     | 1.5        | 3         | 2.1             | 0.0051        | 0.0099        | —            |

| Items<br>Locations | Latitude and longitude of the location |             | Survey date and time |       | pH  | Redox potential E <sub>NHE</sub> (mV) | Water content (%) | IL (%) | TOC (mg/g-dry) | Soil particle density (g/cm3) | Grain size distribution |                            |                               |                              |                          |                              | Median grain diameter (mm) | Maximum grain diameter (mm) | Cs-134 (Bq/kg-dry) | Cs-137 (Bq/kg-dry) | Sr-90 (Bq/kg-dry) |
|--------------------|--|-------------|----------------------|-------|-----|---------------------------------------|-------------------|--------|----------------|-------------------------------|-------------------------|----------------------------|-------------------------------|------------------------------|--------------------------|------------------------------|----------------------------|-----------------------------|--------------------|--------------------|-------------------|
|                    | Latitude                               | Longitude   | Date                 | Time  |     |                                       |                   |        |                |                               | Gravel (2-75mm) (%)     | Coarse sand (0.85-2mm) (%) | Medium sand (0.25-0.85mm) (%) | Fine sand (0.075-0.25mm) (%) | Silt (0.005-0.075mm) (%) | Clay (Less than 0.005mm) (%) |                            |                             |                    |                    |                   |
|                    |  |             |                      |       |     |                                       |                   |        |                |                               |                         |                            |                               |                              |                          |                              |                            |                             |                    |                    |                   |
| A-1                | 37.620583°                             | 140.521950° | 2013/10/8            | 9:41  | 6.9 | 333                                   | 24.5              | 1.8    | 1              | 2.700                         | 3.6                     | 33.1                       | 44.0                          | 14.8                         | 1.1                      | 3.4                          | 0.65                       | 9.5                         | 120                | 230                | 0.19              |
| A-2                | 37.565700°                             | 140.394250° |                      | 11:29 | 7.0 | 352                                   | 38.6              | 6.1    | 9              | 2.668                         | 1.3                     | 24.3                       | 39.2                          | 7.9                          | 7.5                      | 19.8                         | 0.51                       | 4.75                        | 380                | 810                | —                 |
| B-1                | 37.784217°                             | 140.492017° |                      | 14:56 | 7.2 | 335                                   | 29.3              | 2.4    | 3              | 2.723                         | 19.2                    | 15.4                       | 13.0                          | 26.5                         | 11.4                     | 14.5                         | 0.23                       | 19                          | 260                | 580                | —                 |
| B-2                | 37.811983°                             | 140.505817° |                      | 14:03 | 7.0 | 340                                   | 32.7              | 2.1    | 1              | 2.727                         | 0                       | 0.8                        | 45.8                          | 49.2                         | 1.1                      | 3.1                          | 0.24                       | 2                           | 160                | 340                | —                 |
| B-3                | 37.816400°                             | 140.471933° |                      | 13:14 | 6.9 | 352                                   | 16.7              | 1.6    | 1              | 2.701                         | 29.2                    | 38.9                       | 28.8                          | 2.3                          | 0.3                      | 0.5                          | 1.3                        | 19                          | 74                 | 190                | —                 |

(Note) N.D. means to be below the detection limit.

< Locations A and B along the Abukuma River: Survey items Aquatic organisms >

| Location                           | Latitude and longitude of the location |              | 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       |                    |                    |                   |                        |
| A-2<br>(Harase River)              | 37.565700°                             | 140.394250°  | 2013/10/11    | Algae/plant | —            | —             | —                 | —                                       | Attached algae                    | —             | 0.10                   | —                        | —                      | 100                | 240                | —                 |                        |
|                                    |  |              |               | Arthropod   | Insecta      | Odonata       | Cordulegastriidae | <i>Anotogaster sieboldii</i>            | <i>Anotogaster sieboldii</i>      | 131           | 0.10                   | Larva                    | —                      | —                  | 7.8                | 18                | —                      |
|                                    |  |              |               | Arthropod   | Insecta      | Odonata       | Gomphidae         | <i>Asiagomphus melanocephalus</i>       | <i>Asiagomphus melanocephalus</i> |               |                        |                          |                        |                    |                    |                   |                        |
|                                    |  |              |               | Arthropod   | Insecta      | Odonata       | Gomphidae         | <i>Sieboldius albardae</i>              | <i>Sieboldius albardae</i>        |               |                        |                          |                        |                    |                    |                   |                        |
|                                    |  |              |               | Arthropod   | Malacostraca | Malacostraca  | Atyidae           | <i>Neocaridina sp.</i>                  | <i>Neocaridina sp.</i>            | 656           | 0.075                  | Imago                    | —                      | —                  | 47                 | 110               | —                      |
|                                    |  |              |               | Mollusca    | Gastropoda   | Sorbocoencha  | Pleuroceridae     | <i>Semisulcospira libertina</i>         | <i>Semisulcospira libertina</i>   | 59            | 0.087                  | Imago                    | —                      | —                  | 6.2                | 13                | —                      |
|                                    |  |              |               | Vertebrata  | Osteichthyes | Cypriniformes | Cyprinidae        | <i>Phoxinus lagowskii steindachneri</i> | Amur Minnow                       | 26            | 0.24                   | 3-year-old fish          | Some (details unknown) | —                  | 12                 | 24                | —                      |
|                                    |  |              |               | Vertebrata  | Osteichthyes | Cypriniformes | Cyprinidae        | <i>Tribolodon hakonensis</i>            | Japanese dace                     | 7             | 0.12                   | 3-year-old fish          | Some (details unknown) | —                  | 13                 | 28                | —                      |
|                                    |  |              |               | Vertebrata  | Osteichthyes | Cypriniformes | Cobitidae         | <i>Misgurnus anguillicaudatus</i>       | Oriental weatherfish              | 86            | 0.077                  | Mature fish              | —                      | —                  | 5.5                | 13                | —                      |
|                                    |  |              |               | Vertebrata  | Osteichthyes | Salmoniformes | Salmonidae        | <i>Oncorhynchus masou</i>               | Yamame trout                      | 2             | 0.12                   | 1-year-old fish          | Insects                | —                  | 11                 | 23                | —                      |
|                                    |  |              |               | Vertebrata  | Amphibia     | Anura         | Ranidae           | <i>Rana porosa porosa</i>               | Daruma pond frog                  | 9             | 0.041                  | Imago                    | —                      | —                  | 10                 | 22                | —                      |
|                                    |  |              |               | Vertebrata  | Amphibia     | Anura         | —                 | —                                       | Tadpole                           | 47            | 0.036                  | Larva                    | —                      | —                  | 88                 | 190               | —                      |
|                                    |  |              |               | Vertebrata  | Amphibia     | Caudata       | Salamandridae     | <i>Cynops pyrrhogaster</i>              | Cynops pyrrhogaster               | 12            | 0.080                  | Imago                    | —                      | —                  | 5.5                | 14                | —                      |
|                                    |  |              |               | B-2         | 37.811983°   | 140.505817°   | 2013/10/25        | Vertebrata                              | Osteichthyes                      | Cypriniformes | Cyprinidae             | <i>Hemibarbus barbus</i> | Hemibarbus barbus      | 1                  | 1.5                | 5-year-old fish   | Some (details unknown) |
| 2013/11/21                         | Vertebrata                             | Osteichthyes | Cypriniformes |             |              |               | Cyprinidae        | <i>Cyprinus carpio</i>                  | Common carp                       | 1             | 1.5                    | 8-year-old fish          | Some (details unknown) | 3.3                | 8.6                | 0.065             |                        |
| B-3<br>(Surikami River)            | 37.816400°                             | 140.471933°  | 2013/10/8     | Algae/plant | —            | —             | —                 | —                                       | Attached algae                    | —             | 0.039                  | —                        | —                      | 44                 | 100                | —                 |                        |
|                                    |  |              |               | Arthropod   | Insecta      | Trichoptera   | Stenopsychidae    | <i>Stenopsyche marmorata</i>            | <i>Stenopsyche marmorata</i>      | 358           | 0.038                  | Larva                    | —                      | —                  | 37                 | 81                | —                      |
|                                    |  |              |               | Arthropod   | Insecta      | Trichoptera   | Stenopsychidae    | <i>Stenopsyche sauteri</i>              | <i>Parastenopsyche sauteri</i>    |               |                        |                          |                        |                    |                    |                   |                        |
|                                    |  |              |               | Arthropod   | Insecta      | Megaloptera   | Corydalidae       | <i>Protohermes grandis</i>              | <i>Protohermes grandis</i>        | 145           | 0.13                   | Larva                    | —                      | —                  | 2.4                | 5.4               | —                      |
|                                    |  |              |               | Arthropod   | Insecta      | Odonata       | Cordulidae        | <i>Macromia amphigena amphigena</i>     | <i>Macromia amphigena</i>         | 154           | 0.061                  | Larva                    | —                      | —                  | 5.3                | 12                | —                      |
|                                    |  |              |               | Arthropod   | Insecta      | Odonata       | Gomphidae         | <i>Anisogomphus maacki</i>              | <i>Anisogomphus maacki</i>        |               |                        |                          |                        |                    |                    |                   |                        |
|                                    |  |              |               | Arthropod   | Insecta      | Odonata       | Gomphidae         | <i>Davidius sp.</i>                     | <i>Davidius</i>                   |               |                        |                          |                        |                    |                    |                   |                        |
|                                    |  |              |               | Arthropod   | Insecta      | Odonata       | Gomphidae         | <i>Onychogomphus viridicostus</i>       | <i>Onychogomphus viridicostus</i> |               |                        |                          |                        |                    |                    |                   |                        |
|                                    |  |              |               | Arthropod   | Insecta      | Odonata       | Gomphidae         | <i>Sieboldius albardae</i>              | <i>Sieboldius albardae</i>        |               |                        |                          |                        |                    |                    |                   |                        |
|                                    |  |              |               | Arthropod   | Insecta      | Odonata       | Cordulegastriidae | <i>Anotogaster sieboldii</i>            | <i>Anotogaster sieboldii</i>      |               |                        |                          |                        |                    |                    |                   |                        |
|                                    |  |              |               | Arthropod   | Arachnida    | Araneae       | Nephilidae        | <i>Nephila clavata</i>                  | <i>Nephila clavata</i>            | 56            | 0.047                  | Imago                    | —                      | —                  | 46                 | 100               | —                      |
|                                    |  |              |               | Arthropod   | Malacostraca | Decapoda      | Procambarus       | <i>Procambarus clarkii</i>              | Red swamp crawfish                | 4             | 0.030                  | Imago                    | —                      | —                  | 10                 | 23                | —                      |
|                                    |  |              |               | Vertebrata  | Osteichthyes | Cypriniformes | Cyprinidae        | <i>Phoxinus lagowskii steindachneri</i> | Amur Minnow                       | 13            | 0.063                  | 2-year-old fish          | Some (details unknown) | —                  | 10                 | 24                | —                      |
|                                    |  |              |               | Vertebrata  | Osteichthyes | Cypriniformes | Cyprinidae        | <i>Tribolodon hakonensis</i>            | Japanese dace                     | 11            | 0.13                   | 1-year-old fish          | Some (details unknown) | —                  | 15                 | 34                | —                      |
|                                    |  |              |               | Vertebrata  | Osteichthyes | Cypriniformes | Cyprinidae        | <i>Zacco platypus</i>                   | <i>Zacco platypus</i>             | 12            | 0.11                   | 2-year-old fish          | Some (details unknown) | —                  | 6.3                | 17                | —                      |
|                                    |  |              |               | Vertebrata  | Osteichthyes | Cypriniformes | Cobitidae         | <i>Misgurnus anguillicaudatus</i>       | Oriental weatherfish              | 37            | 0.042                  | Mature fish              | —                      | —                  | 6.1                | 12                | —                      |
|                                    |  |              |               | Vertebrata  | Osteichthyes | Salmoniformes | Salmonidae        | <i>Oncorhynchus keta</i>                | Salmon                            | 1             | 2.3                    | 4-year-old fish          | None                   | —                  | 1.5                | 4.4               | N.D. (<0.021)          |
|                                    |  |              |               | Vertebrata  | Osteichthyes | Salmoniformes | Salmonidae        | <i>Oncorhynchus masou</i>               | Yamame trout (small)              | 17            | 0.46                   | 1-year-old fish          | Small shrimps          | —                  | 3.6                | 7.0               | —                      |
|                                    |  |              |               | Vertebrata  | Osteichthyes | Salmoniformes | Salmonidae        | <i>Oncorhynchus masou</i>               | Yamame trout (medium)             | 3             | 0.61                   | 2-year-old fish          | Insects, fish eggs     | —                  | 16                 | 39                | —                      |
|                                    |  |              |               | Vertebrata  | Amphibia     | Anura         | Ranidae           | <i>Rana rugosa</i>                      | Wrinkled Frog                     | 6             | 0.033                  | Imago                    | —                      | —                  | 13                 | 27                | —                      |
| Vertebrata                         | Amphibia                               | Anura        | —             | —           | Tadpole      | 112           | 0.057             | Larva                                   | —                                 | —             | 92                     | 210                      | —                      |                    |                    |                   |                        |
| Coarse particulate organic matters | —                                      | —            | —             | —           | —            | 47            | 0.20              | —                                       | —                                 | —             | 47                     | 110                      | —                      |                    |                    |                   |                        |

Note 1) When multiple types of aquatic organisms were collected, a sample was prepared by mixing them.

Note 2) For species with stomach contents as indicated in the note column, all stomach contents were removed for conducting the analysis.

Note 3) Underlined names in the English name column indicate species largest in number in the respective samples.

Note 4) A statement in red in the "Growth stage" column shows the age assessed based on squama or otolith.

Note 5) N.D. means to be below the detection limit.