

Radiation control

- **Radiation control/ Personnel dispatch:** We conduct on a contract basis radiation control work and dispatch personnel for periodic inspection, modification and decommissioning of nuclear facilities.

Chemical analysis

- **Radiochemical analysis:** Difficult analytical measurement of nuclides, such as ¹⁴C and ³⁵S, are performed with regard to evaluation below screening levels, as a soft beta-ray nuclide analysis of waste for which tritium and ¹⁴C analyses are conducted.

- **Chemical analysis for reprocessing facility process management:** Chemical analyses are conducted for process management of reprocessing facilities.

Development of measuring instruments



Radiochemical analysis



Alara Survey
(GM contamination survey meter with capability to determine contamination)



Measuring instrument for uranium in drums

Decontamination

- **Blast decontamination process:** The most suitable blast system for decontamination will be proposed based on a mockup test and evaluation.

- **DECOHA decontamination process:** A chemical decontamination process for stainless steel scraps to suppress generation of secondary waste.

- **DECOFOR decontamination process:** A decontamination process for scraps, including carbon steel and lead, using formic acid.

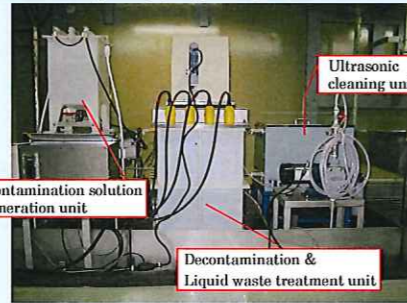
- **Decontamination by concrete chipping:** A device that can decontaminate all concrete surfaces (such as floor, wall and ceiling surfaces) by chipping was developed to achieve labor efficiency.

- **High-pressure jet cleaning/ Ultrasonic decontamination:** A device using high-pressure water or ultrasonic wave, including a filter element cleaning unit having a high cleaning effect of gas-liquid mixture, will be provided.

- **Stripping paint decontamination:** The Alara SD decontamination system contains contamination by painting water-based paint and then decontaminates by stripping the paint.



Blast decontamination unit



Chemical decontamination unit
(DECOFOR process)



Stripping paint decontamination
(Alara SD)

Cutting

- **Application of hydrogen gas cutting process:** A cutting process that does not produce significant amounts of fumes and enables to reduce workers' heat burden. This process is applicable to high quality cutting, such as heavy cutting and smooth finishing, in combination with automatic cutting machines.



CN leak test

Waste management

- Design and manufacturing of waste-containing casks



Plant inspection technology

- **CN leak test system:** Advanced technology to detect a small sea water leak from the turbine equipment main condenser tubes.

This is one of our original technologies that was applied to various types of nuclear and thermal power plants and has contributed to maintaining integrity and shortening work schedules.



Hydrogen gas cutting
(Cutting SUS material by a metal jet process)

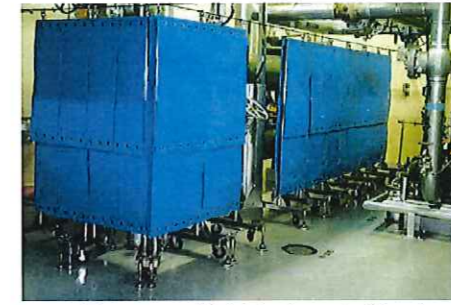
Shielding

- **Lead mat:** A flexible lead mat consisting of laminated thin-plate lead, lead wool, lead shots, etc. Full consideration is given to various applications, such as pipe covering, curtains and partitions.

- **Shaped shielding material:** Shaped shielding materials are designed and produced in consideration of site work. It is capable of meeting various needs, such as radiation exposure reduction during edge preparation on the cut surfaces of high-dose piping.



Laminated thin-plate lead mat (pipe shield) Lead wool



Partition type shield (polycoated lead mat)

Protection

- **Shaped protective sheet:** Protective sheets for large-scale components and those with good sealing performance are produced in factory.

- **Alara Sheet:** This protective material for nuclear use has become a synonym for a filmy sheet with tape.

- **Strippable paint:** Application of waterproof, polyurethane, anti-contamination strippable paint in nuclear facilities is in progress.



Left: Shaped protective sheet
Middle: Alara Sheet
Right: Waterproof strippable paint protective material



Dust collection

- **Alara Venti Series:** Portable local ventilation and dust collectors are necessary for contamination work.

- **Local exhaust ventilation for radioactive fume:** Thermal cutting inevitably generates metallic fumes with fine particles, which clog HEPA filters in a short time. Fume collectors provided with adequate fire protection measures are used in a wide variety of places.

- **Local ventilation for radioactive iodine:** Portable local ventilating devices for radioactive iodine are designed, produced and delivered.

- **Activated carbon fiber filter:** Compared with the conventional granular activated carbon filters, this filter is lighter, more compact and can adsorb radioactive iodine with higher efficiency.



Various dust collectors

Worker protection

- **Waterproof protective suit with reduced burden to workers:** The Alara κ Suit, a protective suit against contaminated water using 3M's Propore, a moisture permeable waterproof material. This minimizes the worker's burden at high temperatures and high humidities in summer and other environments.

- **Device for monitoring heat burden and fatigue, "Otsukarekun"** There is a risk of heat stroke during work at nuclear facilities, etc. where workers are forced to wear heavy protective equipment, especially in summer. Biological information of workers, temperature and humidity in the equipment and other data are sent in real time to management personnel by wireless.



Alara κ Suit



Fatigue level monitoring device "Otsukarekun"