

Form 2

Technology Information	
Area	3 – Removal of radioactive materials from the seawater in the harbor 3. 港湾内の海水の浄化 (1) 海水中の放射性Cs, Sr除去
Title	CENTRIFUGATION OF SEDIMENT FROM THE SEAWATER IN THE HARBOR 港湾内の海水と汚泥の遠心分離による除去 (AREVA 3-3)
Submitted by	AREVA / ATOX

1. Overview of Technologies

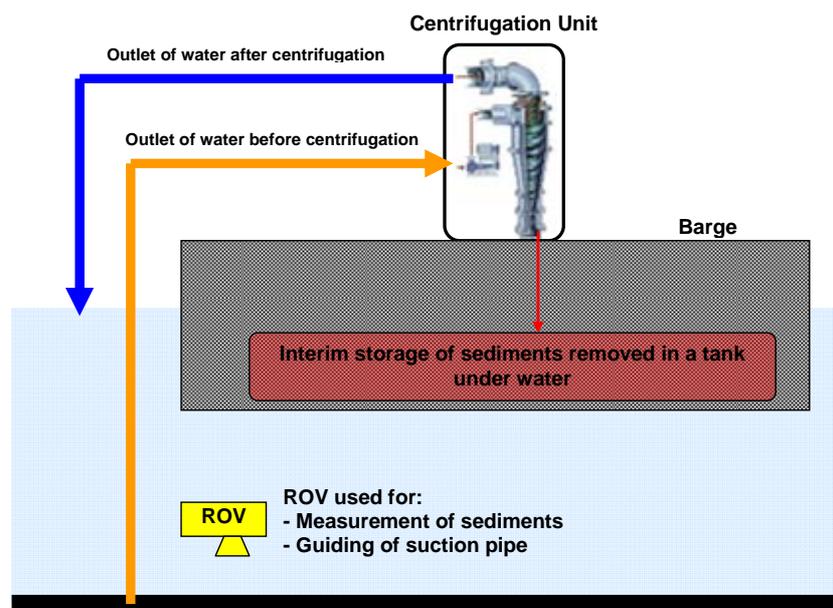
Functions

Separation of the contaminated (Cesium) sediments from water using a centrifugation process.

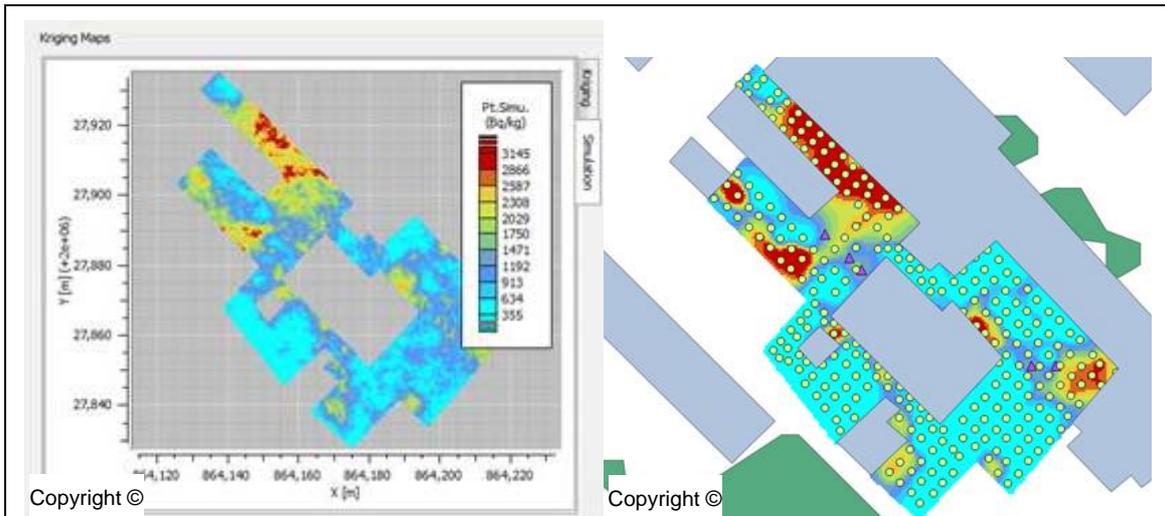
Summary Descriptive

1. The contamination of sediments is measured using underwater ROV (Remotely Operated Vehicle). This allows mapping the soil and dredging only the contaminated parts of the harbor.
2. The arm of the ROV guides the pipe towards the zone to be dredged.
3. The sediments and the water are separated on a barge using a centrifugation process.
4. Contaminated sediments are spin-dried and stored in a tank placed under the barge to avoid irradiation of operators.
5. Residual cleared water return to the sea.

Features & Specifications



Scheme of the installation



Mapping possibility using AREVA ROV

The equipment is composed of the following parts:

- An existing ROV for nuclear measurement plus an arm fitted to guide the pipe,
- A centrifugation unit specially designed,
- A barge equipped with ballasts and tanks easily removable with a crane.

Advantages of our Technology

- High efficiency Decontamination for Cs and nuclides in the sediments of the harbor.
- Tank under the barge and in water: operators protected from irradiation risks.
- Easily removable tank with a crane for on site storage and future processing of sediments
- ROV solution developed to make regularly scheduled monitoring and mapping of underwater environment to support decontamination work while given accurate and up-to-date information to Japanese and international stakeholders.

Owner

AREVA is the owner of the measurement equipment and associated software, and integrator with Japanese company ATOX of the overall solution.

2. Notes

Technology readiness level

The ROV technology, the measurement equipments, and software equipments have already been used in Japan and are available.

The design of the barge will have to be conducted by AREVA fitting the requirements.

Challenges

- Process adaptation on a barge.
- Define waste management strategy:
 - Centrifugation process optimization
 - Type of tank usable for waste storage
- Ensure efficiency and quickness for wide area use (entire harbor).

Others

- The contamination Monitoring solution is patented by AREVA
- The Spectrum Acquisition material is patented by AREVA
- The software used for the data analysis is patented by AREVA

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