[Form 2 (to be reported to Committee on Countermeasures for Contaminated Water Treatment and to be disclosed to public)

Technology Information	
Area	1 (Select the number from “Areas of Technologies Requested”)
Title	Acid-free electrochemical decontamination of the internal space of metal reservoirs with the additional application of the ultra-sound effect and immobilization of radioactive anode sludge in a geocement compound.
Submitted by	R&D Center for expertise of projects and technologies

1. Overview of Technologies (features, specification, functions, owners, etc.)

The technology is based on anode dissolution of a metal surface in a neutral aqueous saline medium and on removal of radioactive contamination with the formed anode sludge. The ultra-sound effect is used as an auxiliary process for removing macro-contaminants from the metal surface.

The technology main phases:

1. The object being decontaminated (a metal reservoir) is used as an anode, and a cathode is placed inside it.
2. The reservoir space is filled with a neutral saline decontaminating solution.
3. When the electric field is imposed, the surface being decontaminated is destroyed, and a sludge is formed, in which a considerable part of radionuclides (^{239}Pu, ^{241}Am, ^{60}Co, ^{154}Eu) is concentrated.
4. The sludge is precipitated by the settling method (settling time is up to 60 min.) and is conditioned into a water-insoluble compound.
5. The cleansed decontaminating solution can be used many times.

Main advantages:

- ✓ Electric (voltage of not more than 12V) and environmental safety of the technology.
- ✓ Efficient sorption of radionuclides (Cs^{137}) and conditioning into a geocement matrix due to the application of a neutral aqueous saline solution.
- ✓ Reduction of the secondary RAW volume due to the concentration of radionuclides in the pickling sludge and multiple application of the decontaminating solution.

✓ The possibility of performing the operations remotely. **Decontamination efficiency:** The decontamination factor reaches 10^5 with the possibility to decontaminate down to the background values when the operations are performed for about 30 minutes at the current density of 20 A/dm^2.
2. Notes (Please provide following information if possible.) - Technology readiness level (including cases of application, not limited to nuclear industry, time line for application) - Challenges - Others (referential information on patent if any)

【Areas of Technologies Requested】

(1) Accumulation of contaminated water (Storage Tanks, etc.)
(2) Treatment of contaminated water (Tritium, etc.)
(3) Removal of radioactive materials from the seawater in the harbor
(4) Management of contaminated water inside the buildings
(5) Management measures to block groundwater from flowing into the site
(6) Understanding the groundwater flow