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

Technology Information	
Area	6 (Select the number from "Areas of Technologies Requested")
Title	Equipment for ⁹⁰ Sr and ³ H control (measurements) in the water
Submitted by	Khlopin Radium Institute

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

Equipment for "on-line" 90 Sr (and 137 Cs) measurements consists of 2 water pampers, control unit and Cherenkov sensor (about 1 l sensitive volume for flowing water flood). It's allow to get results of 90 Sr and 137 Cs activity of 2- 10 Bq per 1l for the measurement times of 100 - 1000 s.

The maximum of ⁹⁰Sr and ¹³⁷Cs activity is about 1000 Bq per l.

It's possible, using smaller Cherenkov sensor to measure activity up to megaBq per l. And, of course, to complete by additional scintillation NaI detectors to measure the gamma-emitting radionuclides.

This equipment has used at PO "MAYAK" for "on-line" ⁹⁰Sr and ¹³⁷Cs measurements of refined discharged wastewaters.

The weights are:

- sensor about 3 kg,
- control unit 1 kg
- passive (Pb) shield up to 250 kg

It's possible to make the version of the equipment for "field" work.

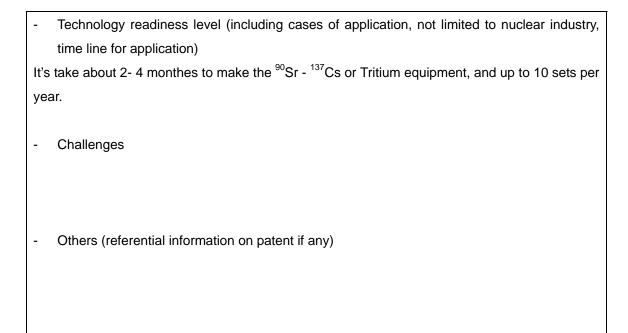
The liquid scintillation counting with periodicity water sampling were used to control of the Tritium concentration in discharged wastewaters.

Water sample (about 0.2-1 l) treated with purification procedure (using membrane or thermal distillation) and then be measured by liquid scintillation counter. The liquid scintillation counter has the passive (Pb) shield. It takes from 5 m (10000 Bq per l) up to 3 h (2 Bq per l) to analysis.

KRI have used that equipment to measure the discharged wastewater and surface water. The weights are:

- purification unit about 5 kg,
- control unit 20 kg
- passive (Pb) shield up to 700 kg

2. Notes (Please provide following information if possible.)



[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